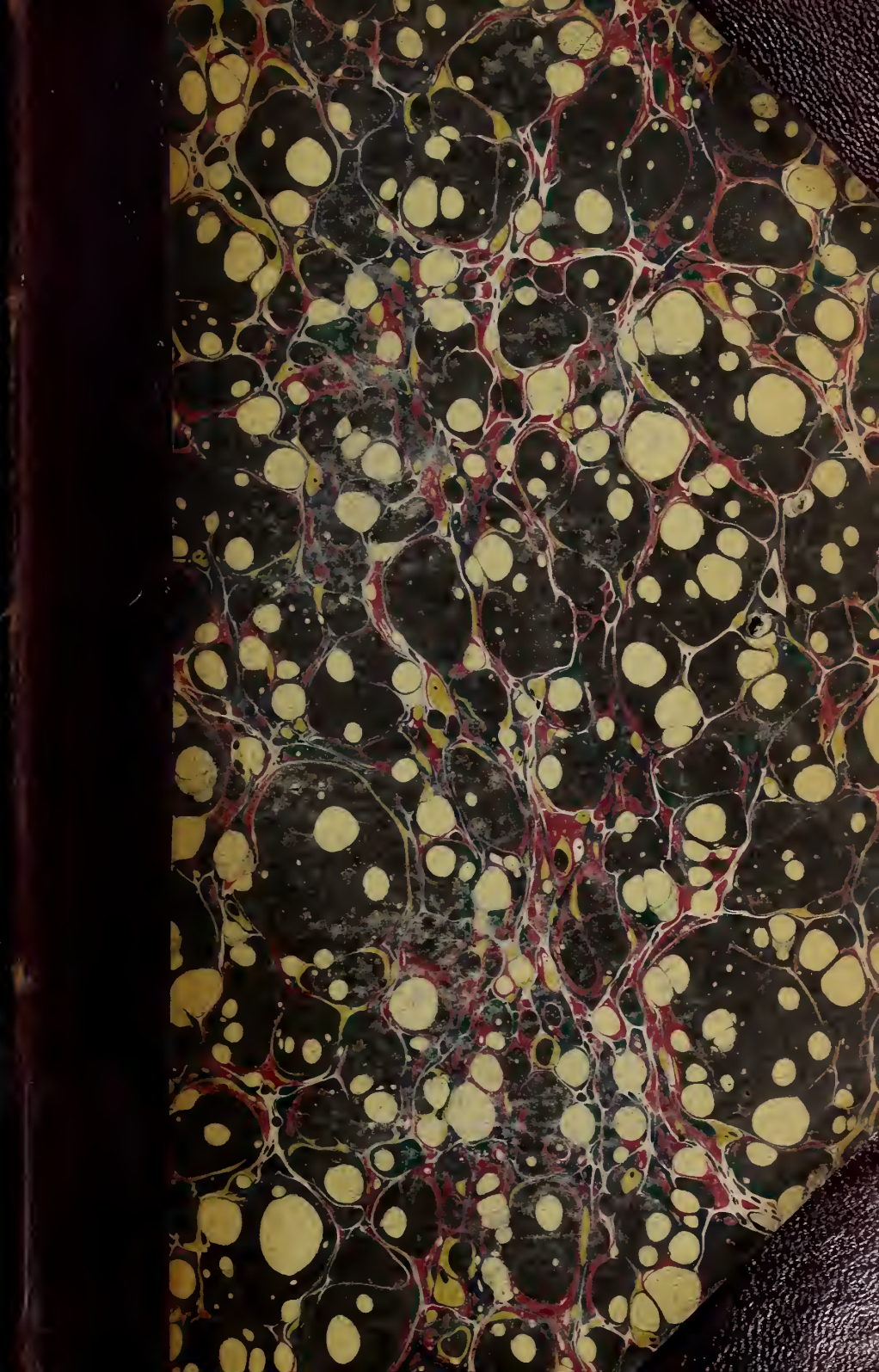

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Journal of the Asiatic
Society of Bengal

JOURNAL

OF THE

ASIATIC SOCIETY

OF

BENGAL.

EDITED BY

THE SECRETARY AND SUB-SECRETARY.

VOL. XIII.

PART I.—JANUARY TO JUNE, 1844.

Nos. 145 to 150.

NEW SERIES.

"It will flourish, if naturalists, chemists antiquaries, philologers, and men of science, in different parts of *Asia* will commit their observations to writing, and send them to the Asiatic Society, in Calcutta; it will languish if such communications shall be long intermitted; and will die away if they shall entirely cease."—SIR WM. JONES.

CALCUTTA:

BISHOP'S COLLEGE PRESS.

1844.

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The Honorable W. W. Bird, Esq.

Vice Presidents, ...
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- The Honorable Sir J. P. Grant.
- The Honorable Sir H. Seton.
- H. W. Torrens, Esq.

Secretary, ... H. W. Torrens, Esq.,
Sub-Secretary, ... H. Piddington, Esq.

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Dr. J. Hœberlin,	S G. T. Heatly, Esq.
Lieutenant A. Broome, B. H. A.	N. B. E. Baillie, Esq.
C. Huffnagle, Esq.	W. Grant, Esq.

Curator Zoological Department Museum, .. E. Blyth, Esq.

Curator Geological and Mineralogical Departments and Museum of Economic Geology, ... H. Piddington, Esq.

Librarian, ... Dr. E. Roer.

Accountant and Assistant to the Secretary, Mr. W. H. Bolst.

Assistant Librarian, ... Mr. W. Fenwick.

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By an oversight, the list of Members of the Society intended for the present No. was published with No. CXLIV. Another is now given, and the former one may be cancelled.

LIST OF MEMBERS

Of the Asiatic Society of Bengal, on 1st January, 1844.

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Stephen, Capt. J. G.
Syud Keramut Ullee, Associate Member.

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Withers, Rev. Principal G. U.
Wallis, Rev. A.
Wilcox, Major R.
White, Major M. G.

Young, Lieut. C. B.

Rules of the Asiatic Society.

The following is an abstract of the rules of this Institution which are now in force, including those printed in the Appendix to the sixth and subsequent volumes of the Society's Transactions.

Original Rules adopted from the Founder's Discourse, 15th February, 1784.

1.—The Institution shall be denominated the Asiatic Society, the bounds of its investigations will be the Geographical limits of Asia, and within these limits its enquiries will be extended to whatever is performed by man or produced by nature.

2.—Weekly Meetings shall be held for the purpose of hearing Original Papers read on such subjects as fall within the circle of the Society's enquiries.

3.—All curious and learned men shall be invited to send their Tracts to the Secretary, for which they shall immediately receive the thanks of the Society.

4.—The Society's Researches shall be published Annually, if a sufficiency of valuable materials be received.

5.—Mere Translations of considerable length shall not be admitted, except of such unpublished Essays or Treatises as may be transmitted to the Society, by Native Authors.

6.—All questions shall be decided on a Ballot, by a Majority of two-thirds, and nine Members shall be required to constitute a Board for such decisions.

7.—No new Member shall be admitted who has not expressed a voluntary desire to become so, and in that case, no other qualification shall be required, than a love of knowledge, and a zeal for the promotion of it.

Subsequent Resolutions of the Society which are in force.

8.—The future Meetings of the Society shall be held on the first Wednesday of each month; at half-past Eight o'clock in the Evening.

9.—If any business should occur to require intermediate Meetings, they may be convened by the President, who may also, when necessary, appoint any other day of the week, instead of Wednesday for the stated Meetings of the Society.

10.—As it may not always be convenient for the President to attend the Meetings of the Society a certain number of Vice Presidents shall be elected annually.

11.—In case the President, and the Vice Presidents are absent at any Meeting, a quarter of an hour after the fixed time, the senior Member present shall take the Chair for the Evening.

12.—Every Member of the Society shall have the privilege of introducing as a visitor, any gentleman who is not usually resident in Calcutta.

13.—With a view to provide funds for the necessary expenses of the Society, an Admission Fee shall be established to consist of two gold mohurs, payable by every Member on his election, and each Member of the Society, resident in India (Honorary Members excepted) shall also contribute a gold mohur, quarterly, in the first week of January, April, July and October. Any Member neglecting to pay his Subscription for half a year, after it becomes due, to be considered as no longer a Member of the Society.

14.—All Members returning to India shall be called upon to pay their Subscription as usual from the date of their return.

15.—A Treasurer shall be appointed.

16.—In addition to the Secretary, an Assistant Secretary and a Librarian shall also be appointed.

17.—A Committee of Papers shall be appointed, to consist of the President, Vice Presidents, Secretary, and nine other Members to be elected annually, and any number no less than five, shall be competent to form a Committee.

18.—This Committee will select from the papers communicated to the Society, such as may appear proper for publication, and superintend the printing of the Society's Transactions.

19.—The Committee of Papers shall be authorized to draw upon the Treasurer for any sums requisite to defray the expense of publishing the Translations, and an order signed by a Majority of the Committee, will be a sufficient warrant to the Treasurer for paying the same.

20.—The Committee of Papers is authorized to defray any small contingent expenses on account of the Society which they may deem indispensable.

21.—Every Subscribing Member of the Society, on application, shall be furnished with a copy of such volumes of the Researches as may be published whilst he continues a Member, in return for his contributions, without any further payment.

22.—With a view to the more general circulation of the Asiatic Researches in India, the price of the 12th and future volumes, to Non-subscribers, shall be fixed at a gold mohur, and if several volumes of different years be purchased together, they shall be sold at 10 rupees each.

23.—The Agents of the Society in England shall be desired to purchase, and forward for the Society's Library, Books of Science and Oriental Literature, published in Europe, taking care that those purchases at no time exceed the funds arising from the sale of the Society's publications.

24.—The Committee of Papers shall be requested to furnish the Agents in Europe with such further instructions as may appear requisite for their guidance in the selection of books proper to be placed in the Library of the Society.

Library.

25.—The Library is open from 10 to 4 o'clock, between which hours, the Assistant Librarian is to be in attendance every day, Sunday excepted.

26.—None but the Members of the Society are allowed to borrow Books from the Society's Library, and no book is to be lent out of Calcutta without especial permission from the Committee of Papers.

27.—Books are to be borrowed by written or personal application to the Secretary; in either case, the person applying is to furnish a written receipt specifying the name of the work, and the time for which it is borrowed, at the expiration of which he is to return the book borrowed, or renew his application for an extended loan of it.

28.—The receipts for the Books shall be filed, and a Record kept of the Books lent out, to whom, and when lent out, and when returned.

29.—A list of the Books in the Library, and a Register of those lent out, are to be kept ready for inspection.

30.—All persons borrowing Books are to be answerable for their safe return, or are expected to replace them if injured or lost.

31.—The Librarian should be authorized to call in any work which is detained beyond the time fixed by the preceding rule.

32.—All works borrowed from the Library, should be returned once a year, viz. the first of October, in order to enable the Librarian to have the most efficient control over them, and to report to the Secretary on the state of the Library.

33.—Valuable manuscripts should not be removed from the Library, and no work from the Oriental division of the Library can be borrowed by Native gentlemen, not Members of the Society without a special order of the Secretary.

34.—All books being books of general or special reference in the various branches of Natural History in the departments of the Zoological, Geological, and Mineralogical Curators, to be understood by the Librarian to be Books of reference for the use of those officers, and as such, not to be lent out of the Library.

35—The Curators are farther to be allowed to take over for daily use, such Books as they may select for that purpose, giving the usual receipt to the Librarian.

Museum.

34.—On the 2nd February 1814, the Society determined upon forming a Museum for the reception of all articles that may tend to illustrate Oriental Manners and History, or to elucidate the particulars of Nature or Art in the East. The following Resolutions were at the same time passed upon the subject.

35.—That this intention be made known to the public, and that contributions be solicited of the undermentioned nature:—

1. Inscriptions on stone and brass.
2. Ancient Monuments, Mahomedan or Hindoo.
3. Figures of the Hindoo Deities.
4. Ancient Coins.
5. Ancient Manuscripts.
6. Instruments of War peculiar to the East.
7. Instruments of Music.
8. The vessels employed in Religious Ceremonies.
9. Implements of Native Art and Manufacture, &c. &c.
10. Animals peculiar to India, dried or preserved.
11. Skeletons, or particular bones of animals peculiar to India.
12. Birds peculiar to India, stuffed or preserved.
13. Dried Plants, Fruits, &c.
14. Mineral or Vegetable preparations in Eastern Pharmacy.
15. Ores of Metals.
16. Native alloys of Metals.
17. Minerals of every description, &c. &c. &c.

36.—That the hall on the ground floor of the Society's house be fitted up for the reception of the articles that may be procured. The plan and expenses of so doing to be regulated by the Committee of Papers and Secretary, and the person under whose superintendence the Museum may be placed.

37.—That the expense which may be incurred in preparing materials furnished in a state unfit for preservation be defrayed by the Society within a certain and fixed extent.

38.—All articles presented to the Museum shall be delivered in the first instance, to the Superintendent of the Museum, to enable him to make the acknowledgment, directed in the standing rules of the Society.

39.—A Register of Donations to the Museum, shall be exhibited each Meeting of the Society.

40.—The Committee of Papers shall adopt such means as may appear proper for making the intentions of the Society, in this respect, generally known.

41.—That the names of persons contributing to the Museum or Library of the Society, be hereafter published at the end of each volume of the Asiatic Researches.

Bibliotheca Asiatica.

The following Resolutions were passed on the recommendation of the Committee of Papers, under date the 2nd July 1806, but materials have not yet been received for publishing a volume of the work therein proposed.

42.—That the Society publish from time to time as their funds will admit of it volumes distinct from the Asiatic Researches, translations of short works in the Sanscrit and other Asiatic Languages, or extracts and descriptive accounts of books of greater length in those languages, which may be offered to the Society, and appear deserving of publication.

43.—That as this publication may be expected gradually to extent to all Asiatic books of which copies may be deposited in the Library of the Society, and even to all works extant in the learned languages of Asia, the series of the volumes, be entitled Bibliotheca Asiatica, or a Descriptive Catalogue of Asiatic Books with extracts and translations.

Physical Class.

The following Resolutions were passed on the 2nd January 1828:—

1.—That the Physical Committee of the Asiatic Society be considered as in existence and for the same purposes as formerly, exclusively of Medicine.

2.—That all Members of the Society, be Members of the Committee.

3.—That persons not belonging to the Society, may be elected as corresponding Members of the Committee, upon the recommendation of any three Members without being liable to any charge.

4.—That the Committee elect its own Officers.

5.—That the Committee frame its own rules, subject whenever likely to interfere with the Rules of the Society, to confirmation at a General Meeting.

6.—That the proceedings of the Society, and short notices of any interest, be published from time to time, as they accumulate, in such form as may be hereafter found convenient.

7.—That Papers of any extent or permanent interest, be published in the same type and form as the Researches, so as to admit of their being bound up with them.

8.—That the expense of these publications be borne by the Society.

9.—That the Physical department of the Museum be considered under the especial charge of the Committee, Mr. Tytler undertaking the care of the Osteological Specimens and Mr. Ross of the Minerals.

Translation Committee, 3rd September, 1828.

That a Committee of the Society be formed to communicate with the Committee of Translation of the Royal Asiatic Society, and carry their views into effect by procuring and transmitting such Manuscripts, Originals and Translations, as they may be able to obtain for the purpose.

That a Book be opened for Subscriptions of Ten Guineas per annum, each Subscriber; entitling him to a Copy of all the Works printed by the Translation Committee.

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JOURNAL

OF THE

ASIATIC SOCIETY.

A Tenth *Memoir on the Law of Storms in India, being the* Madras *and* Masulipatam Storm *of* 21*st to* 23*rd May*, 1843. *By* Henry Piddington. *With a Chart.*

Between the 21st and 23rd May, 1843, a very severe hurricane was experienced on the coast of Coromandel, which seems to have extended from a short distance South of Madras to Masulipatam and Coringa. Great mischief was occasioned by it on shore and along the coast, and several vessels foundered at sea, or were driven on shore, among which were the ships and brigs *Amelia Thompson*, *Favorite*, *Inez*, *Union*, *Braemar*, *Joseph* and *Victor*, &c. with others more or less disabled.

It is to the always active zeal of Captain Biden of Madras, that I am indebted for the greater part of the documents from which the present Memoir is drawn up. I have as usual abridged them as far as possible, but so as to preserve carefully all the essential facts. I commence at Madras, with the logs of the ships farthest to the Southward; I then take those to the Eastward to trace the storm in its progress across the Bay, and finally, I give those to the North of Madras, as far as Calcutta. I then add, as usual, a summary shewing the grounds on which I have laid down the track of the storm, and embodying such other remarks as may have occurred to me.

Abridged Log of the Ship Bussorah Merchant, *Captain* Farrier, *from Bombay to Calcutta, reduced to civil time.*

18*th May* 1843.—P. M. strong monsoon, W. N. W. and West, with squalls and rain. 4 P. M. abreast of Point de Galle, distance 7 miles.

19*th May.*—Rounding Point de Galle, and at noon wind W. by S. and fine; steering N. E., latitude 5° 52′ N. longitude account 82° 12′ E. 4 P. M. strong W. by S. breeze. Bar. 29.56,* increasing to a hard gale W. by S. at midnight.

20*th May.*—Gale continuing W. by. S. latitude account 7° 20′ N. Bar. 29.26. P. M. continued heavy gale W. S. W.; squalls, rain and heavy sea; midnight Bar. 29.26.

21*st May.*—Day-light *more moderate*, wind S. W.; at noon Lat. 8° 30′ N., longitude 86° 29′. P. M. strong gale South, with heavy squalls continuing to midnight.

22*d May.*—A. M. finer, but gale continuing from the South to noon, when latitude 12° 00′ N., longitude 87° 24′ E. Bar. 29.36. P. M. South and S. S. E. monsoon gale, to midnight.

23*d May.*—Noon latitude 14° 34′ N., longitude 86° 30′ E., wind S. S. W., steady monsoon gale from midnight.

Extract from the Log of the Ship RAJASTHAN, *Captain* AIKIN, *from Calcutta to Mauritius, reduced to civil time.*

19*th May.*—A. M. brisk breeze E. S. E. and S. E.; at 7 A. M. S. E. by E.; at noon, ship standing to the S. S. W. Noon latitude observed 9° 1′ N., longitude 88° 16′ E. P. M. increasing with squalls, and Bar. stated to be "falling."† At midnight *more moderate*, wind S. E. by E. to East and N. E.

20*th May.*—1 A. M. wind N. E.; 4 A. M. wind shifted to the West; day-light increasing; 6h. 30m. hard gale from Westward; at 10 A. M. wind marked West; noon, Bar. 29.20; from 30.00, at which it had before stood, wind West. P. M. wind W. by S. Ship running from 1 A. M. from 5 to 7 knots to the Eastward, strong gale W. to midnight.

21*st May.*—A. M. the same; 5 A. M. hauled up to the S. E. by E. Noon, gale had moderated to fresh gale and heavy sea, latitude 8° 12′ N. Bar. 29.70. To midnight hard gale S. S. W.

22*d May.*—A. M. the same to noon, when latitude 7° 48′ N., longitude 91° 45′ E. Bar. 29.60. P. M. fresh gale, being on 23d and following days the usual monsoon.

* Corrected by a comparison in Calcutta.—H. P.

† Its height not given at this time.

Abridged Log of the H. C. Steamer TENASSERIM *from Aden, bound to Calcutta, civil time.*

21*st May* 1843.—A. M. fresh breeze from W. N. W., variable towards noon with squalls, and squally appearances all round from E. S. E. to W. N. W. and a heavy sea. Latitude 6° 48′ N., longitude chronometer 78° 3′. P. M. wind S. and S. W. fresh and squally. Midnight brisk gale with heavy squalls and showers and a heavy sea. Bars. at 4 A. M. 29.92 and .75. Noon 29.90 and .72. 4 P. M. 29.90 and .72.

22*nd May.*—Wind S. W., weather and sea the same. Latitude 5° 3′ N., longitude 80° 3′ E. P. M. wind W. S. W. and S. W. strong breezes and sea. Barometer 4 P. M. 29.80 and .40. Noon 29.30 and .40.

23*d May.*—Winds W. to S. W. by W., weather and sea the same. Noon, latitude 6° 49′ N., longitude 82° 58′ E. P. M. to midnight the same weather. Barometer at 4 P. M. 29.30 and .55.

23*d May.*—4 P. M. went into Trincomalee harbour.

Abstract of Log of the Bark CORINGA PACKET, *from* 13*th to* 22*d May, civil time. From Captain* BIDEN.

18*th May*, fine weather. Barometer fell from 29.70 to 29.50. At 8 P. M. 29.45, the weather still looking fine, sent down royal yards, took one reef in the top sails. Point Pedro bearing W. S. W., distance about 140 miles; midnight strong N. E. winds. Barometer 29.40.

19*th.*—2 A. M. a tremendous squall from E. S. E. attended with heavy lightning, struck the ship, and hove her on her beam ends; before being able to shorten sail, the main sails and fore and maintopsail were blown out of the bolt ropes. 4 A. M. blowing a fresh gale attended with heavy rain, bent another maintopsail, close reefed it, and set it. Daylight blowing a tremendous gale from E. by S., the sea running in pyramids, and the ship labouring very heavy. 8 A. M. Barometer 29.30. 10h. 30m. A. M. a very large water spout formed within about 2 cables length from the ship, passed across her stern, and hove the ship round head to wind, the fall of water on board the ship was tremendous. Observed the Barometer to rise immediately to 29.45. Noon

the sea abated, wind flew round to the N. W. in a tremendous squall, and the weather began to look more favorable. Observed Flag Staff Point, Trincomalle, bearing West, distance 10 miles. 3 P. M. wind from Westward, a strong double reef topsail breeze with clear weather.

20*th*.—Moderate throughout. Barometer at 28.50. 8 P. M. weather looking very bad to the W. S. W. Midnight blowing a heavy gale.

21*st*.—3. A. M. the gale increasing, and the sea rising, hove the ship to under close reefed maintopsail. Daylight blowing a terrific gale, the sea running in all directions, the ship labouring very heavy, and at times on her beam ends, the maintopsail blew out of the bolt rope. Barometer 29.40. Noon, latitude 5° 30′ N., longitude 83° 40′ E. 4 P. M. the sea and wind abated a little. 6 P. M. moderating fast, made sail gradually. 8 P. M. Barometer rising fast. Wind at West. Midnight fresh breeze and fine. Barometer 29.65.

22*nd*.—Moderate and fine; during the gale of the 19th and 21st, the ship has not suffered the least, and made no water.

Madras, 10*th July*, 1843. (Signed) T. B. Chilcott.

Abridged extract from the Log of the Ship Marquis of Hastings, *Capt.* J. Biddle, *from Singapore bound to Calcutta, reduced to civil time. Forwarded by Capt.* Biden.

20*th May*, 1843.—Noon latitude 11° 51′ N., longitude 95° 5′ E. Moderate S. by W. to W. S. W. at midnight.

21*st May*.—S. S. W. wind to noon. Daylight, Narcondam bearing N. W. $\frac{1}{2}$ N., breeze freshening to 6 knots with squally weather to the Westward. 8 A. M. heavy squall from S. W. Noon moderate. P. M. light and cloudy and squally to Westward; wind S. W. to midnight.

22*nd May*.—Weather squally; S. W. by W. to S. S. E. wind; a cross sea from S. W., latitude 14° 52′, longitude 93° 57′ E. P. M. Preparis bearing West, distance 10 miles, light winds N. W., dark and squally. midnight strong breezes N. W. and heavy sea.

23*rd May*.—A. M. the same strong breeze and heavy cross sea, wind N. W. Noon latitude account 16° 42′, longitude 92° 4′ E. At 6 P. M. wind about West. At P. M. veering to S. W., and moderating to the usual monsoon at midnight.

24*th May.*—Noon latitude 17° 58′ N., longitude 90° 10′ E. Light Vessel, computed to bear N. W. ½ N. distance 200 miles.

Ship Bramin. *Extract forwarded by Capt.* Biden.

The ship Bramin from Singapore bound to Madras, had from 20th May, between latitudes 8° and 8° 38′ N. heavy threatening weather from S. by W., veering gradually to S. W., and reducing her to close reefs till the 23rd, when the weather became finer. No Barometer or longitudes are given in her log, but we may take it that she was far to the Eastward, and that this was the usual weather at the setting in of the monsoon.

Extract from the Log of the Barque Seringapatam, *from Acheen Head to Madras, reduced to civil time. Forwarded by Capt.* Biden.

From the time of leaving Acheen Head, we had a continuance of gloomy unsettled weather to the—

20*th May.*—Wind S. S. W. 4 P. M. increasing gales, heavy squalls with rain, thunder and lightning, latitude 7° 30′, longitude 98° 50′.

21*st May.*—At noon wind S. S. W., latitude 9° 10, longitude 88° 50′. Commences with heavy squalls, with rain, thunder and lightning, a heavy confused sea.

At 8 P. M. increasing gales, heavy squalls, gloomy weather close reefed topsails, and reefed foresail.

Throughout these twenty-four hours, a continuance of heavy squalls and gloomy weather.

22*nd May.*—Wind S. W. by S., latitude 10°, longitude 85° 30′. Commences with heavy gales and squalls of rain, thunder and lightning, a heavy confused sea, under close-reefed topsails; latter part more moderate, made sail.

The remainder of the passage gloomy, unsettled weather, squally with rain, thunder, and lightning, with a continuance of threatening appearances.

S. Foster, *Mate.*

Abstract of the Log of the Transport Barque TEAZER, *from Madras to Penang with Troops on board, reduced to civil time. Forwarded by Captain* BIDEN.

19*th May*, 1843.—At noon latitude 12° 00′ N., longitude 81° 28′ E. Barometer 29.72. Thermometer 86°. Weather very threatening, and winds variable, hove to; the wind not marked, but apparently from S. W. to S. S. W. At 3 P. M. made sail, winds to midnight marked about S. E.

20*th May.*—Shortened sail and hove to again at noon, in consequence of the threatening weather and disturbed sea; wind marked as variable from E. to N. N. E. Noon no observation, latitude account 11° 18′, longitude account 82° 40′ E. Barometer 29.70. Thermometer 86°: P. M. every appearance of bad weather, wind increasing to strong gale from about N. W., violent squalls and rain. Wind not marked, but from about 9 P. M. "running free," course E. S. E., 8 knots, to midnight, under close reefed maintopsail, foresail, and foretopmast staysail; gale increasing fast.

21*st May.*—2 A. M. "scudding *almost* before it," course E. S. E., 9 and 10 knots (hence wind W. by N. or West? but not marked!) At 8 a very violent squall W. N. W. veering to S. W. 11h. 30m. foresail blew from the yard, ship scudding 12 knots, broached to. Noon hove to, a complete hurricane. Barometer 2 A. M. 29.70

6 „ 29.40

8 „ 29.30

Noon „ 29.20

Noon, latitude account about 10° 43′ N., longitude 85° 4′ E.

P. M. gale continuing, wind not marked,

4 P. M. Barometer 29.20

„ Midnight 29.45

22*nd May.*—At 7 A. M. gale a little moderated. Noon latitude indifferent observation 11° 25′ N., longitude 85° 10′ E. Barometer 29.60. P. M. wind marked S. S. W. and at 5 P. M. South; gale moderating to midnight: making sail and repairing damages.

23*rd May.*—More moderate, wind still (apparently) South. Noon latitude by account 11° 58′ N. longitude 86° 27′ E. Barometer 29.66. Thermometer 86°. P. M. moderating, but still threatening.

24*th May*.—Fine. Noon latitude 11° 10′ N., longitude 88° 37′ E. Barometer 29.68. Thermometer 88°.

At Penang, the Meteorological Register kept there by order of Government, gives at 9h. 40m. A. M. the following state of the Barometer for—

17th	May 1843,	29.954
18th	ditto	—.886
19th	ditto	—.888
20th	ditto	—.938
21st	ditto	—.926
22nd	ditto	—.944
23rd	ditto	—.930

There is nothing in the remarks of the weather, &c. to indicate any extraordinary disturbance.

Observations at Calcutta. By H. PIDDINGTON.

21*st May, Sunday Eveniug*, 1843.—8 P. M. stars particularly clear and brilliant, The zodaical light like a comet; to the South, stars visible at 5° elevation.

22*nd, Monday*.—A. M. Barometer fallen from 29.8 on the 21st to 29.7, squally from S. S. W. with light rain, and in the evening a heavy shower, East heavy nimbus. Barometer 29.76

23*rd, Tuesday*.—Dark gloomy weather, squalls and rain from S. W. and South. Bar. 29.70.

24*th Wednesday*.—6 A. M. Barometer 29.775, dark gloomy nimbi from East to Zenith. To the Westward clear with strata at intervals. To the Southward, at times much smoky scud driving rapidly across from the East, light breezes and puffs at intervals, with drizzling rain from the East.

At the Surveyor General's Office at Calcutta, at Noon, the Barometer on these days stood as follows :—

May	21st	Bar.	29.698
,,	22nd	,,	—.665
,,	23rd	,,	—.590
,,	24th	,,	—.610

At Bombay the Standard Barometer corrected to Temp. 32°, *was at*

20th	..	...	29.572
21st	..	..	Sunday.
22nd	..	..	—.456
23rd	..	..	—.395
24th	..	..	—.434
25th	...	...	—.495

From the Madras Athæneum.

Vizagapatam.—On the evening of the 21st ultimo, the rain commenced pouring down in torrents, and continued so for the space of nearly one week, accompanied by a strong wind, which set in from the North East, veered round to the East and blew a furious hurricane from that quarter; during its continuance, a solitary Dhoney which was riding at anchor in the roads, having been the previous evening deserted by the greater portion of her crew, parted from her anchor, and was driven to the shore with only three men on board; and she went to pieces a very short time after. A native brig also ran ashore, (intentionally as is generally supposed,) and she now lies a total wreck about a mile or two to the Northward of this place. Recent accounts from the Northward mention the fact of wrecks of vessels being strewn along the coast, and that about a dozen native craft have wrecked or foundered between this and Ganjam.

Abridged Extract from the Log of the Brig Union, *Captain* Springer, *from Coringa bound to Pondicherry, reduced to civil time. Forwarded by Captain* Biden.

The *Union* left Coringa on the 19th May 1843, on which day at noon Coringa Light House bore West about 7 miles distant. P. M. light winds, and at midnight fresh breezes Eastward.

20*th May.*—Noon, wind E., latitude 15° 1′ N., longitude 82° 37′ E. P. M. freshening from N. E. Evening and morning with heavy rain; made preparations for bad weather. Midnight strong gales, apparently N. E. Vessel very leaky, and heaving cargo overboard.

21*st May.*—To noon gale increasing. No longitude or latitude marked. P. M. wind marked N. or N. by W. Vessel scudding, and gale increasing to midnight.

22*nd May.*—Gale still continuing, but apparently veering to the Westward, for it is marked at W. N. W. At 1 P. M. vessel scarcely kept afloat and sinking, but always scudding.

23*rd May.*—1 A. M. wind S. W. At 7 A. M. saw the bark *Helen*, Captain Driver, and succeeded in getting on board of her, the brig going down shortly after. At noon on this day, *Helen's* latitude was 11° 50′ N., longitude 82° 30′ E.

Abridged Report of the Master Attendant of Coringa, forwarded by Capt. BIDEN, *civil time.*

20*th May.*—A. M. N. E. Wind 1 P. M. Easterly. 10 P. M. N. E. fresh breeze, with thunder and cloudy weather to the Southward.

21*st May.*—Wind N. E. with heavy squalls throughout; latterly constant showers of rain.

22*d May.*—A. M. Wind N. E. At 5 P. M. Easterly heavy gales, and constant showers of rain throughout.

23*rd May.*—1 A. M. wind marked S. E. 3 A. M. Southerly, moderating to fine weather at midnight.

Abridged Log of the Barque Candahar, Capt. RIDEY, *from Bombay bound to Calcutta, civil time.*

19*th May, Friday.*—Throughout light variable breezes E. N. E. to E. S. E. Noon latitude 15° 26′ N., longitude 81° 30′ E.

20*th May.*—A. M. 5 knot breeze N. E. by E. to S. E. and N. E. at noon, when latitude 16° 06′ N., longitude 82° 13′ E. 4 P. M. Barometer had fallen to 29.60, with threatening appearances; made all snug for a storm. At 10 P. M. wind N. E. by E. increasing rapidly to midnight.

21*st May.*—A. M. wind N. E., storm increasing with violent squalls, ship lying to. A barque to windward, sea very high, Barometer down

to 29.55. No observation, latitude account 15° 40′, longitude 82° 40′ E. P. M. to midnight increasing storm, sea making a clear breach over the vessel.

22*nd May.*—A. M. heavy gale N. E. weather as before. At 10 A. M. wind marked at S. E. Barometer at 8 A. M. 29.35. Noon latitude by account 15° 30′ N., longitude account 83° 00′. 1 P. M. "blowing a perfect hurricane at S. E. with a terrific cross sea." 1h. 30m. P. M. Barometer at 28.83. At 2h. 30m. P. M. "hurricane at its highest, and drawing round to the Southward; vessel making very bad weather." At 4h. 30m. P. M. Barometer inclining to rise a little, but no change in the weather. "Hurricane continuing to blow if possible with more fury." At 6 P. M. "hurricane having shifted to South, wore ship as we were drifting fast in shore." 8 P. M. Barometer 29.29, and wind more moderate. Midnight a heavy gale with squalls at times.

23*rd May.*—A. M. hard gale S. S. W., daylight abating, but sea very heavy. Noon latitude 15° 38′, longitude 83° 20′ E. Wind S. S. W., strong gale to midnight.

24*th May.*—Strong monsoon from S. W. to W. S. W., latitude 17° 42′, longitude 85° 00′. On the 25th, arrived in soundings, and on 26th at noon, Point Palmiras Light House bore N. E. by N. 4 or 5 leagues.

Abridged Log of the Barque EUPHRATES, *Capt.* WILSON, *from London, bound to Calcutta, reduced to civil time.*

19*th May*, 1843.—To noon fine weather, wind from East to N. E. by E., which had also been about its direction for the preceding 24 hours. Noon latitude 14° 51′ N., longitude 81° 28′ E. P. M. to midnight the same winds and weather.

20*th May.*—Winds from N. E. to North, freshening from North at noon, and from latitude 16° 2½′ N. longitude 81° 40′ E. At 10 A. M. Masulipatam bore W. ½ N., 10 miles. P. M. moderate breeze E. N. E. increasing at 8 with thunder, lightning and rain. Midnight very threatening appearance; wind E. N. E., making all snug and standing to the S. Eastward.

21*st May.*—By 6 A. M. hard gale E. N. E. 10 A. M. *variable.* At noon N. Easterly, hard gale and squalls, with heavy rain. Latitude

by observation 14° 40′ N., longitude 82° 52′. " An Easterly current the last 24 hours, the high Easterly swell *preceded* the wind about 4 hours, and the sea got up very rapidly with the wind,"* Noon, Barometer 28.90. Sympiesometer 28.80. At the commencement of the gale, Barometer 29.80. Sympiesometer 29.60. P. M. hard gale N. E., high cross sea. Midnight very hard gale. Wind at 9 P. M. Easterly. Midnight E. S. E.

22*nd May.*—5 A. M. blowing a hurricane. 7 A. M. wind S. E. by S., wind drawing S. E. and Southerly in the squalls. Noon wind S. S. E., hurricane still continuing. Latitude account 14° 08′ N., longitude 82° 29′ E. P. M. continued heavy hurricane at South. *Hail* and rain at 1 P. M. 6 P. M. Barometer rising rapidly, wore and bore up to the N. E. by E. 7 P. M. wind S. S. W. 8 P. M. Barometer 29.20. Midnight hard gale and heavy squalls.

23*rd May.*—2 A. M. wind S. S. W. 6 A. M. to noon moderating, and sail was gradually made, wind S. S. W. Latitude observation 16° 17′, longitude 83° 44′. " A set of 62 miles South 69° E. in the last 48 hours." To midnight variable, and squally from the South to S. S. W.

Abridged Log of the Barque Lord Elphinstone, *Captain* Crawford, *from Madras towards Vizagapatam; civil time. Forwarded by Captain* Biden.

21*st May, Sunday,* 1843.—First part cloudy weather with wind from N. N. E. to N. E. Barometer falling from 29.98 to 29.55. At 3 P. M. dark gloomy appearance with sudden gusts of wind, prepared for bad weather. At 11 P. M. severe squalls. Midnight strong gales from N. N. E. to N. E., veering between the two points. Barometer, middle part 29.50 to 29.42, latter part and noon 29.20. Latitude 15° 45′ N., longitude 83° 15′ E. by dead reckoning.

22*nd Monday.*—Severe gales from N. E. to E. N. E. and East; at 10 A. M. blowing very hard with a high sea; at 10-30 severe squalls split the double reefed topsails; Barometer 29.8 hove the ship to with

* This remark is worth attention. The Easterly set was probably the outpouring of the Godavery.

a tarpauling on the weather mizen rigging, at noon terrific squalls, got the anchors secured with extra lashings, ship behaving very well, Barometer from 28.8 to 29.0, 28.90 and 28.80. At 1 P. M. a heavy sea struck the back of the rudder, carried away some of the pintles and gudgeons, got a hawser passed over the stern to keep the rudder steady; at 2 if possible, blowing harder, the lee side of the fore castle, and top-gallant rail under water; wind veering from East to E. S. E. and S. E. blowing very severe.

23*rd Tuesday.*—Barometer at 2 A. M., 28.75 wind hauling to S. S. E. the hawser securing the rudder cut through, the rudder now beating from side to side at a most fearful rate making all tremble; at 5 wind South, at 6 broke down the after cabins to get at the rudder, all the pintles being gone with the exception of the upper one; succeeded in lifting it out, and letting it go clear of the ship. 8 P. M. wind moderating at S. S. W. Midnight Ditto; Barometer 29.0 to 29.5 and 10.

24*th Wednesday.*—Ship making a great deal of water, observed the counter stove in, and the rudder case all started in consequence of the time it took to get clear of the rudder; all hands, with the passengers, employed at the pumps; at 2 getting more moderate, commenced making a jury rudder with the spanker boom for a main piece and 20 fathoms of chain cable.

25*th May.*—Employed at the pumps and rudder, got it over and made sail; latitude 16° 18′ longitude 83° 18′ 45′ E. deemed it proper to haul up for Coringa to repair damages, at 4 P. M. sighted Coringa Light. Noon, anchored in the Roads, the crew quite exhausted from incessant labour.

This hurricane according to Col. Reid's Theory of Storms, passed from E. N. E. in a W. S. Westerly direction, and the centre of it could have been no great distance from us to the southward, at least not more than from 6 to 8 miles.

I have seen the Commander of the unfortunate Amelia Thompson, he says this Hurricane commenced with him from N. Westward, vering to West and S. Westward, thereby shewing that the centre of this turning wind or hurricane was to the Northward of him.

The Barometer is by Troughton and Sims, a most excellent instrument, its average range in ordinary weather is from 29.90 to 30.10 and 30.12.

(Signed,) H. Crawford.

Extract from the Log of the Barque LYNDOCH *from Madras towards Vizagapatam, reduced to civil time. Forwarded by Capt.* BIDEN.

20th May Saturday, 1843.—1 P. M. of 19th, winds E. N. E. steady breezes and fine weather; 4 P. M. ditto wind and weather; 6 steady breezes and cloudy weather; 8 squally; 10 wind E. by S. midnight squally with rain, wind E. by N. At 2 A. M. 20th increasing winds and squally with lightning to the Eastward. Daylight *decreasing winds* and cloudy weather. At 8 winds E. N. E. and ditto weather, at 10 squally. Noon steady breezes and fine, watch employed bending mainsail. Latitude by observation 18° 42′ North.

P. M. Winds E. N. E. fresh breezes and cloudy weather; at 4 increasing breezes and cloudy. At 6-30 increasing wind, at 8 fresh winds and cloudy with lightning. At 10-30 strong breezes and squally. At 12 strong breezes and squally.

21st May.—A. M. Wind N. E. by E.; at 2 increasing gales; at 3 and at 10 strong gales. Wind E. N. E. squally weather at 11 severe gales; noon, increasing gales and very severe squalls; sun obscured. P. M. Wind E. N. E. strong gales and squally; at 5-45 increasing gales and severe squalls. At 8 severe gales and thick hazy weather; at 9 increasing gales and very severe squalls with rain, laid the ship to under the close reefed trysail and double reefed spanker; at 12 strong gales and very heavy squalls.

22d May.—At 4 increasing gales and severe squalls with rain, Daylight heavy gales and very heavy squalls. At 8 blowing a tremendous hurricane. Noon the same. P. M. wind N. E. by E. 30 wore ship; at 1 P. M. shift of wind from the westward, and the ship under bare poles; at 3 wind W. S. W.; at 4 blowing a tremendous hurricane, and the ship lurching very heavily, filled the larboard quarter boat, cut her away; at 4-30 ship lurching very heavy, greatly damaged starboard quarter boat, carpenter prepared his axes to cut away masts if necessary. At 5 carried away the spanker gaff; at 6 the hurricane abated a little; at 8 very strong gales and severe squalls with thick hazy weather. Midnight strong gales and severe squalls with thick hazy weather.

23d May.—Daylight inclined to moderate with decreasing squalls. At 10 more moderate; at noon decreasing wind and cloudy, sun obscured. 7 A. M. wind S. S. W.; 10 S. W.

P. M. Wind S. W. by S. At 7 S. by W. P. M. strong gales heavy squalls, rain, and a heavy swell running; at 5 more moderate; at 10 increasing gale. Midnight increasing squalls with rain.

24*th May.*—At 4 P. M. moderate with a fine clear sky; daylight moderate; 10 wind S. by E.; 11 South; Noon moderate and fine; latitude by observation 16° 24′ N.

To the foregoing Log, Captain Biden adds the following valuable notes obtained by him from Captain Corney.

"I have just got hold of Captain Corney of the Lord Lyndoch, he says at ¾ past Noon on Monday the 22d, the Barometer fell from 28.35 to 27.95—at 10 A.M. it was at 28.35—he says the strongest gusts were about 1 P. M. when there were intermitting severe gusts, *accompanied by great and terrible heat—and there were alternate gusts of heat and cold* after the hurricane veered to S. W.*

"The commencement of the Gale was from N. E. by N., just after Midnight on the 20th—all the 21st the Easterly gale continued—the change was preceded by a dead calm which lasted ¾ of an hour.—, and the shift was about *one p. m.* on Monday, when the Barometer was at its minimum—a tremendous cross sea arose at this time, but the swell from the S. W. soon subdued that which had got up from the Eastward. Rain and drift of sea accompanied the hurricane, darkening the atmosphere very much—sails were blown away from the yards, though well secured with studding sail gear, &c.

Ship was nearly thrown on her beam ends. Poultry drowned on lee side of the Poop."

Abridged Log of the Ship JULIA, *Capt.* JONES, *from Calcutta to the Mauritius, reduced to Civil time.*

18*th May.*—Noon in latitude 18° 29′ longitude 89° 38′. Calms and light rains to midnight. "Heavy clouds rising from S. E. quarter. Barometer only 29.75, which is lower than it stands generally." Midnight light S. W. breeze.

19*th May.*—2 A. M. light S. E. breeze to noon when latitude 18° 05′ longitude 89° 06′ observation. 7 P. M. freshening, vivid lightning S. S. E. to S. S. W.; midnight steady breeze S. E.

* The italics are mine.—H. P.

20*th May.*—1 A. M. Barometer 29.72. Noon, increasing breeze S. E. by E. squally and heavy head sea; latitude 16° 09′ longitude 88° 13′ Barometer 29.75. P. M. hard squalls wind E. S. E. threatening appearance to the Eastward. 7 P. M. severe gusts with rain and lightning; 11 P. M. wind S. E. by E.; 1 P. M. Barometer 29.55; at 6 P. M. 29.50; at 9, 29.50; midnight 29.50. Thermometer 86° throughout.

21*st May.*—S. E. by E. gale, with increasing heavy cross sea; 2 A. M. S. E. Noon strong gale; latitude account 13° 50′ longitude 86° 46′ Barometer 1 A. M. 29.50; 4 A. M. 29.50; 6 A. M. 29.49; 9 A. M. 29.48 Thermometer 86°. P. M. wind S. E. to S. S. E. severe gale. 6 P. M. severe gale with squalls at times "attended with a thick fog." Midnight the same weather; 1 P. M. Barometer 29.48; 6 P. M. 29.48.

22*d May.*—To noon, wind S. E. to S. S. E. severe gale with heavy cross sea; latitude account 13° 47′ longitude account 86° 05′ E. Barometer 1 A. M. 29.50; 6 A. M. 29.50; 10 A. M. 29.50. Thermometer 86°. P. M. wind S. E. to South, strong gales and sea as before. 4 P. M. moderating a little; 7 gale increasing again, midnight strong gale and clear weather, wind about South. P. M. Barometer 29.45; 6 P. M. 29.45; 11 P. M. 29.40. Thermometer 86°.

23*d May.*—A. M. The same gale from South. Barometer 5 A. M. 29.40. 11 A. M. 29.40; Ther. 86. Noon latitude observation 15° 47′ longitude 85° 20′. The Log remarks that the Vessel had suffered much by the heavy cross sea arising from a S. E. and S. W. swell for the last 24 hours. P. M. wind Southerly, more moderate; 5 P. M. again increasing. Barometer 1 P. M. 29.55. 6 P. M. 29.55; Ther. 86°.

24*th May.*—A. M. becoming fine; wind South to Noon, when latitude observation 15° 42′ N., longitude 85°51′ E. Barometer at 2 A. M. 29.60; 11 A. M. the same. Thermometer 86°.

Extracts from the Log of the Transport CHAMPION, *Captain* BUDD, *reduced to civil time. Forwarded by Captain* BIDEN.

18*th May.*—Light airs from E. N. E. and hot, sultry weather; strong set to the Northward, and much swell from the Eastward, latitude 14° 6′. Barometer 29.9.

19*th*, *Friday*.—Light airs from E. N. E. and sultry weather, latitude 15° 29′. Barometer 29.85. P. M. light breeze from the Eastward and heavy wind.

20*th Saturday*.—A. M. Cloudy weather and much lightning with heavy swell from the Eastward; latter parts squally with distant thunder and vivid lightning and suspicious looking weather; saw the land off Narsapour Point. Latitude 16° 9′. Barometer 29.85 to 29.75. P. M. fresh increasing breeze from N. E. and heavy swell, exchanged signals with the "Inez;" prepared for bad weather. Throughout the night hard squalls from Eastward and E. N. E. with a heavy sea getting up and much rain and lightning.

21*st Sunday*.—From daylight to noon blowing a strong gale with occasional hard squalls and rain; under a close reef main topsail and close reefed mizen. Latitude by account 15° 31′. Barometer 29.70. P. M. heavy gale and increasing, with much sea, and ship labouring greatly, wind drawing to E. S. E. Midnight, increasing in violence with tremendous squalls and rain.

22*d Monday*.—Ship now labouring greatly with the heavy seas, lashed one half of the new poop awning to the Gaff to assist in keeping to. Barometer 29.60.

P. M. Wind drawing round to the Southward and inclining to lull; suspecting a sudden shift round to the S. W. immediately wore ship, which no sooner done, and, had the yards again secured, when it commenced blowing a perfect hurricane from South, accompanied with dark weather, and tremendous heavy rain and high sea, which threw the vessel completely on her beam ends, staving in the quarter boat. I now fully expected every instant to see the masts all go by the board, as from the great and constant labouring of the vessel the rigging had become quite slack, and the topmasts were pressed over like a bow; fortunately we had taken the precaution previous to have swifters on, as in righting again and rolling suddenly to windward, it would all have snapped during the tremendous gusts, and after, it was impossible to distinguish any thing the length of the vessel, from the violent rain and drift of the sea which completely washed over all. From our position by reckoning, and great drift which we have experienced whilst lying to from the commencement, and heavy seas from the eastward and S. E. and which still in-

creased in force carrying the vessel right before them, I fully expected, should the wind not draw round to the S. W. that we should be driven before night upon Narsapour Point, for the wind had hung so constantly to the Eastward that with difficulty we could obtain an offing; immediately after the vessel righted I got below to my cabin and found the Barometer had fallen suddenly from 29.60 to 29.20.* the gale continued without intermission with hard squalls and rain with tremendous cross sea until midnight.

23*d Tuesday.*—Midnight drawing round to S. S. W. and abating in strength afterwards, when we made a little sail and kept away East. During most part of the night the pumps were constantly at work. From daylight to Noon decreasing, but still hard squalls; by indift obsn. Latitude 16° 0′ Longitude 83° 20′: found we had experienced a strong lee current.†

24*th Wednesday.*—P. M. decreasing with passing squalls and much sea, wind S. S. W. Barometer 29.60.

25*th Thursday.*—The weather commenced moderating and sea subsiding, anchored at *Vizagapatam*, Barometer 29.60. to 29.90.

VINCENT BUDD,
Commander.

Report from the Bark Chatham, Capt. GIFFORD, *forwarded by the Marine Board.*

In the Bay I experienced a severe gale from N. E. to S. E. commencing on Saturday the 20th May at 10 P. M. and lasting to Monday the 22d May noon, when it moderated. My Latitude was 16° Longitude 84° in the height of the gale, by dead reckoning, and by comparing logs with the Euphrates. I find it was more severe 30 miles S. W. of our position. WM. GIFFORD.

Report from Masulipatam by R. ALEXANDER, ESQ. *forwarded by Capt.* BIDEN.

Masulipatam 23d May, 1843.

From the weather we have experienced here I fear that you have had a gale at Madras, and bad weather both to the Northward and

* The italics are mine, for this remarkable fall is a very curious phœnomenon.
† The storm wave.—H. P.

Eastward, the weather has been unsettled here for some days, and since the 20th the wind has been from the N. E. On the 21st we had heavy squalls with rain, with the Barometer falling. From yesterday morning the Barometer fell rapidly as you will observe by the following memorandum.

22nd May at	4 P. M. Bar.	29.080	
	4.30	.050	
	5. gale, increasing and blowing in violent gusts.		
Violent Gusts	6.24 Bar.	28.900	
	6.30	.875	
	7.	.820	much lightning to S. and S. E. and thunder.
	7.30	.730	
	8.	.760	
	8.30	.730	
	9.	.760	
	10.	.760	
	10.30	.760	
P. M.	11. Bar.	28.774	
	11.30	.820	
	12.	.940	
23rd	1 A. M.	.980	
	2	29.050	½ P. M. 2 wind changing to E. S. E. and then to S. and S. b W. blowing with great violence with drizzling rain.
	3 A. M.	29.100	
	4	.150	
	5	.175	Noon the Barometer is now up to 29.300 blowing fresh from the Southward.

Two Brigs and one Sloop are on shore, and four Brigs have lost their main masts; several of the cargo boats are driven inland, as well as a sailing boat of my own missing, with large stores of firewood and timber. Great damage has been done in consequence of the sea having inundated the place; the inundation extended beyond the first range of Garden Houses, and the Causeway is rendered useless, the sea having flowed over it and breached the retaining walls in several places, besides carrying away all the stone coating; the Bund leading

from the Fort to the Village of Gillumdindee is also breached. The sea flowed into the Fort through the East and sea gates, one doney is left close to the brick work of the pettah gate, a large boat is lying against the Causeway, and part of a Lower mast lying on the causeway half a mile from the Fort.

Trees in every direction have been blown up by the roots, windows and doors of substantial houses blown in, and a number of Native huts and buildings destroyed. From Noon of the 21st to 5 P. M. 22nd, we had 2.025 inches of rain. I have just received a report of one Brig having foundered with all on board, with the exception of one Lascar who saved himself on a plank.

Masulipatam, 15th Sept. 1843.

My dear Sir,—The greatest violence of the gale on the coast, appears to have been felt here, although it was felt as far North as *Culingapatam.* I have no information with regard to the distance it extended to the Westward, and in the Guntoor and Patnaud Districts the damage appears to have been caused by the torrents of rain, while here all the rain that fell during the gale did not amount to $2\frac{1}{2}$ inches, there was thunder and lightning during the gale, but not much. The gale commenced from N. E. and N. N. E. and ended at S. W.

Report from the Acting Master Attendant at Pulicat. Forwarded by Capt. Biden.

We had a strong gale here, accompanied with heavy rain, which commenced on Sunday morning the 21st at about 11 o'clock—blowing N. N. W., and abated the following day at noon. I am happy to add that, with the exception of a few old buildings which fell down, no other material injury was done at this place; no vessels were in these roads on the day of the gale.

Abridged Reports from Madras, by Captain Biden.

The range of the Barometer at Madras during the late gale was from 29.67 to 29.37—and at Ennore, about 8 miles to the Northward

of Madras it fell as low as 29.30 at 3 A. M. on the 22d instant. Wind veering throughout the 21st from N. N. W. to W. N. W.—the quantity of rain which has fallen in 48 hours is 10½ inches. Fourteen vessels put to sea from these Roads between 11-30 and 1 P. M. on the 21st May.

CORDELIA.—Went as far out as 82° 20′ E. Latitude 11° 30′ N. Barometer fell to 29.0 and continued as low as 29.20 two days. The heaviest of the gale was from N. W. ending at S. W. on Tuesday. During the gale the sea was very heavy and confused, more so than commonly in such gales.

BRAHMIN *from Singapore to Madras, Saturday 20th May,* squalls at 4 P. M. midnight dark cloudy weather. Wind throughout veering from S. W. to S. S. W. 6 A. M. heavy squalls with much rain— Noon gale increasing ; wind S. by W.

Sunday 21st.—Strong gale and squalls with much rain. Wind S. by W. Midnight ditto weather. 6 A. M. more moderate, noon clear, latitude observation 8° 16′ N.

22d Monday.—Commenced with unsettled weather, heavy squalls with much rain, throughout squalls and unsettled weather, wind veering from S. W. to S. S. W.

Tuesday 23d.—Strong breezes and squalls, wind S. S. W. Midnight dark cloudy weather. 4 A. M. more moderate and clear. Noon wind S. W. clear weather, latitude observation 8° 38′.

The *Barque* BRAEMAR slipped from Madras Roads with the wind at N. N. W., N. W. and finally W. N. W., She was laid on her beam ends and righted only by cutting away her masts, the wreck of which carried away her rudder. The Vessel became water-logged and nearly unmanageable and was driven by noon 23rd May to latitude by observation 12° 55′ N. Wind at 1 P. M. on 22d civil time, being W. S. W. and at 1 A. M. 23d S. W. by S. She was finally driven on shore and wrecked near False Point Divy.

Ship HENRY.—Put to sea from Madras Roads, and had the wind veering from N. N. E. at 1 P. M. on the 21st May, to S. W. by W. at noon on the 22d, when the Barometer was at 28.90. At midnight, wind S. W. Barometer 29.20, the gale moderating towards daylight on the 23rd ; at noon of which day she was in latitude 13° 18′ and at noon of the 24th in latitude 12° 26′ N. longitude 81° 57′ E.

Brig Briton.—This vessel slipped and ran to sea with the wind at N. W. at 1. 30. P. M. on the 21st May civil time. At 7 the wind was North, and at 10 N. N. E. Vessel steering E. by S.

On the 22d at 5 A. M. the wind shifted to West in a hard squall. At noon hard gale, latitude by indifferent observation 12° 15′ N; by account 12° 35′: longitude account 82° 51′. Barometer 29.20, having made by log 158 miles E. by S. and E. S. E. from Madras roads.

The wind marked S. W. fresh gales at midnight, moderating.

On the 23d at noon latitude observation 11° 36′ N. Account 12° 7′ Barometer 29° 40′, Chronometer 83.25. Account 83.52.

Ship Baboo—had increasing gales as she proceeded to the Eastward, and at 2 A. M. on Monday 21st May, had it blowing very hard from W. N. W. with continued sleet showers, thunder and lightning. Two Barometers at their lowest 28.29. On Monday 22d at noon, latitude obs. 12° 33′ N. and longitude per 2 chros. 82° 0° E. . Since then had the wind mostly from S. S. W. to West. *Baboo's* Barometer when she slipped was at 29.20, and here it stood, then at 29.57; her Barometer is therefore .37 below the true range.—N. B. See subsequently her report.

Report of Capt. Stuart *of the Barque* Baboo, *to Capt.* Biden. *Forwarded by that Officer.*

On Sunday at 12-30 we slipped from 80 fathoms cable and went to sea.

Had an increasing gale as we went to the Eastward, and at 2 A. M. on Monday 21st May had it blowing very heavy from W. N. W. with continued sleet showers and much thunder and lightning. My two Barometers at their lowest 28.29.

The *Kyd* was the last of the ships seen by us on Sunday evening, and none of them were seen afterwards. I laid my ship to, having broke part of the wheel and got the man steering maimed, otherwise we had no casualties.

On Monday at noon my latitude was per observation 12° 33′ N. and longitude per two Chronometers 82.0 E., since then had mostly the winds from S. S. W. to West.

Ship Isabella Watson, *Capt.* J. A. Macdonald, *from Madras to Calcutta: report from her Commander, reduced to civil time.*

19*th May* 1843, *Friday.*—The weather was close and sultry with a heavy swell rolling in on the beach indicating the approach of a storm. Thermometer at noon 83°43′, sympiesometer 29.36.

20*th Saturday.*—A. M. hove short and made sail from Covelong; 7 A. M. came to anchor in Madras Roads, hard squalls from the N. W. with heavy rain; observed the flag flying at the fort for all ships to prepare for sea. Thermometer 48°, sympiesometer 29.26. P. M. squally and variable from N. E. to North with heavy rain.

21*st Sunday.*—A. M. made sail from Madras Roads, at 4 A. M. hard squalls and rain from N. N. E.; 10 A. M. blew very hard with squalls and rain from N. E. to N. and a high turbulent sea running. Under close reefed main top sail; noon blowing very hard with a high cross sea and heavy rain. Thermometer 83°30′, sympiesometer 29.16.

A continuance of the N. E. gale. At 2-30 P. M. Thermometer 84° sympiesometer 28.96. The ship labouring this time most fearfully, 8 P. M. Thermometer 83° sympiesometer 28.84. 9 P. M. Thermometer 83°, sympiesometer 28.0 a fearful sea running.

22*nd May.*—3 A. M. a heavy squall with hail and rain; 8 A. M. the gale blowing with greater violence with a turbulent cross sea, making a fair breach over the ship, and straining her very much. Thermometer 83°, sympiesometer 28.64. Noon ditto weather.

Madras bearing by account West and by North 70 miles.

2 P. M. Thermometer 83°30′, sympiesometer 28.70. 3 P. M. sympiesometer 28.84, the weather more moderate, but a turbulent sea, the wind flew suddenly from N.W. to West. At 4 P. M. it came from S. W. and continued so with dark weather and rain.

23*rd May.*—At noon Thermometer 84°30′, sympiesometer 29.11.

Abridged Report from Capt. ONSLOW, *of the Ship* GENERAL KYD, *to the Secretary to the Marine Board, Calcutta.*

The ship General Kyd, of 1318 tons burthen, (old measurement) left the Bengal passage, Acheen Head, on the evening of the 9th May, civil time, with a pleasant breeze and very sultry weather from the N. Eastward.

This continued for some days with squalls and variable weather at times, and sudden sharp squalls and rain, and that throughout the passage from Acheen to Madras, to which place we were bound in ballast from China. The weather continued so unsettled, although the Barometer continued high, between 29.70 and 29.90 and the thermometer never below 84°, and on one afternoon at 3 o'clock it stood at 96° in my cabin that I was led to apprehend a gale of wind during the whole passage of eight days. On the 19th May I anchored in Madras roads, and immediately received a notice from the Master Attendant to be prepared for bad weather. On the 20th May the weather was squally and unsettled from the Northward, Barometer at 29.70. In the evening the appearances becoming more favourable I did not leave the shore, but on the morning of Sunday the 21st the sea which is a sure forerunner of a gale on that coast, rose tremendously high, insomuch that I was once capsized in trying to get through the surf, and was very nearly one hour and a half in getting through the second time, with the boat nearly full of water; at noon got on board the ship, the wind then from N. N. W. blowing fresh, shipped the cable and made sail, stood E. by S. At 3 P. M. gradually increasing with thick rain at times and most turbulent sea. At 7-30 P. M., much lightning to the Eastward, but the sky gathering up thick in the Westward, and very unsettled and squally, with a furious sea. At about 8-30 a tremendous squall and a sudden shift to W. by N. Clued up and with difficulty furled the main topsail and rounded to with head to the N. Eastward, ship labouring awfully. Continued strong gale and tremendous sea till about 2-30 A. M. on the 22d, when the wind in a tremendous squall shifted suddenly to the S. W. by W. causing the sea to rise in perfect mountains and in a most confused irregular manner,—the ship then rolling and plunging that I sometimes thought she would not recover herself. About 3-30 the mainmast went over the side followed by every stick except the foremast, bowsprit and fore yard; the ship then

rolled her gunnels under. The strength of this hurricane lasted till about 8 A. M. when it become a little more moderate, but the sea running with unabated fury. Had no observation that day, but the reckoning at noon made us about 68 miles E. $\frac{1}{2}$ S. from Madras. Soon after sunset the wind and sea moderated a little, and by daylight on Tuesday the 23d, we were enabled to get a foresail bent, and set as much sail in various ways as we could, and at noon by observation found ourselves in latitude 13° 47′ N. longitude 82° 3′ E. Barometer 29.44. The breeze settled into a fresh monsoon from S.W. to S.S.E. which weather continued pretty steady till the 31st May, when at 9-30 P. M. we made the Light Vessel at the Sandheads.

State of the Barometer on board the General Kyd, during the late gale, corrected by comparison with that of the Surveyor General's Office, Calcutta.

May 21st at Noon,		29.45
	at 3 P. M.	29.38
	5 ,,	29.28
	7 ,,	29.26
	9 ,,	29.19
	11 ,,	29.17
	12 ,,	29.11
	2 ,,	29.11
May 22d at noon,		29.18
	2 P. M.	29.19
	5 ,,	29.27
May 23d, noon,		29.42

Thermometer ranging from 82° to 88°.

Ship PROTOMELIA.—Slipped from Madras roads at noon 21st May; at 10 P. M. hove to.

22nd.—4 A. M. blowing a hurricane with heavy thunder, lightning and rain, Barometer 28° noon latitude account 12° 49′, longitude 81° 41′.

23d.—Barometer rising, latitude noon 12° 56′, longitude 82° 4′. This vessel ran, and was driven to 82° 30′ East longitude; and from 12° 49′ N. to 14° 8′ N. She returned safely to Madras.

Brig Dora, report by Capt. HARVEY, *Commanding her, to Capt.* BIDEN.

On Sunday night I experienced a hard gale about N. West, attended with constant rain, hove to with head to the Northward. *Monday*, at 4 P. M. sudden change of wind from the S. West and more moderate; at noon latitude by observation 12° 50′ longitude 82° 25′ E. Tuesday exchanged colours with the ship *Henry*, latitude 12° 56′. Wednesday 10 P. M. made Madras Light bearing S. West, but owing to the night's looking so dirty I stood off, and have been in latitude 14° 5′, found the current setting strong to the N. Eastward; during the whole I have not lost or strained a rope yarn. Yours respectfully,

May 30th. WM. HARVEY.

No Barometer; Sympiesometer injured with sea.—C. B.

Barque Coaxer, Capt. RIDLEY.

The heaviest of the gale commenced about midnight on Sunday, when we hove to under bare poles. 4 P. M. on Monday the gale moderated; when we made sail gradually; our Barometer was as low as 29. during the heaviest of the gale; we were as far to the Eastward. as 82°26′ by Chronometer.

The Bark Orpheus at Anchor at Ennore, forwarded by Captain BIDEN.

20*th May.*—Begins with light winds from S. S. W. and ends with strong gales from W. N. W. Barometer at 29.305 and falling.

21*st May.*—Strong gales, heavy rain and thunder and lightning, wind N. W. to W. N. W. throughout, but "*strong swell setting in from the Eastward,*"* is noted in the log at 2 P. M.; when heavy gales which continued to midnight, Barometer 29.4.

* These and the other italics are mine. The "strong swell from the Eastward setting in on the Coast with a gale blowing directly off shore, is a remarkable phenomenon, which can only I think be explained by the progressive motion of the Storm Wave. —See Eighth Memoir, p. 398, Vol. XII, Jour. As. Soc.

22*nd May.*—A. M. wind N. W. P. M. W. N. W. and West at midnight; strong gales throughout; and heavy swell *from the Eastward.* Barometer 29.3.

23*d May.*—Winds West, W. S. W., S. W. and finally S. S. W. moderating at 6 A. M. to clear weather. Barometer A. M. 29.4 and P. M. 29.5. Strong swell *from the Eastward* A. M. which is noted as going down about noon.

Coringa.—On the night of the 22d May, the French Barque *Joseph et Victor*, Captain Honey, 360 tons, belonging to Messrs. La Forque and Co. of Nantes; bound from Bourbon to Calcutta with a cargo of 1000 bags of Cloves and a good deal of Specie, was driven on shore to the Southward of the Coringa Light House. About 700 bags of Cloves have been saved as well as the crew and passengers; it was believed that much more property would be rescued. On the same day the Native Brig *Hamsamalah* of Chittagong, laden with a cargo of salt, was driven ashore 12 miles to the Northward of Coringa, one man lost. On the 26th the *Lord Elphinstone*, Capt. Crawford, bound from Madras to Vizagapatam, put in at Coringa in distress—she had lost topsail yards and all her sails in the gale which set in from N. E., veering to E. S. E. and blowing a furious hurricane from S. S. E.

The *Amelia Thompson* foundered at Sea about 80 miles E. by N. of Madras on Tuesday morning the 23d ultimo at 6 A. M. Part of the crew, consisting of the Captain and 15 men, have been saved, having been in open boats from Tuesday morning until Friday morning, when they were picked up by a native vessel, on board of which they were treated with great kindness, and they ultimately landed at Coringa on Monday last. The remaining portion of the crew, seven in number, have met with a watery grave.

Effect of the Recent Gale in the Interior.—As we had feared would be the case, we regret to say that accounts are daily being received from the interior of the loss of life and property from the recent gale and heavy fall of rain with which it was accompanied—Villages had been swept away and property destroyed to a very large amount, in value, as well in building, as in cattle and grain, &c. &c. and in addition we regret much to add, the loss of human life.—The following extract from the *Spectator* tells a serious tale of disasters.

"We regret to learn by a letter dated Poorshottapolium, 27th ult., that terrible destruction has been caused in the Guntoor district in consequence of the inundation attending the late storm; many villages having been swept away or sustained great damage by the floods which came down suddenly on the morning of the 23d. Swelled by the previous rains, *four* nullahs and *sixteen* tanks near Inacondah, overflowed or swept away their banks, causing a lamentable loss of life and property, of which the following details are given.

"*Rajahpett.*—Three hundred houses destroyed or injured, *seven* lives lost. Poorshottapolium, 200 houses injured, *seven* lives lost. Chilkloorpett, 300 houses injured, *two* lives lost. Pusmorroo, 20 houses injured, *four* lives lost. Annanarum and Toolapanee, 200 houses injured, and *seventeen* lives lost. In addition to the above damage or destruction of above a *thousand* houses, and the loss of *thirty-seven* lives, it is stated, that 2,800 head of cattle and horses and 9,000 sheep perished, and that 2,700 candies of grain were more or less injured. The whole amount of damage being estimated by our informant at above 100,000 Rupees. The total destruction occasioned by the inundation was indeed hardly ascertained, many villages having been damaged or swept away, of which no perfect account had yet been received.

"From the notices now received from distant parts of the country it is evident, that the gale and heavy rain felt here about a fortnight ago, formed merely part of a great atmospheric disturbance ushering in the South-West Monsoon, and traversing the entire peninsula from North to South, marked throughout its course by considerable, though happily only locally, destructive violence. At Delhi on the 17th, unusual weather prevailed. 'High North-West and Easterly winds and occasional storms of rain, the coolness of the atmosphere being, for the time of the year, very extraordinary.' At Hyderabad a few days later, the Monsoon set in with great violence, and at Coringa, Masulipatam, Guntoor and Pondicherry, in fact all along the coast in a North and South line, heavy gales and torrents of rain simultaneously prevailed."

We glean the following from the *Bombay Times* of May 24:—

"*The Weather.*—Since the evening of Thursday, the sky has looked so troubled, and the barometer fallen so steadily, that we supposed the Monsoon to be at hand. The wind has got round nearly to South-west, and the alternating land and sea breezes have ceased. Our sea

breeze, which blows with so much regularity from the North-west for seven months in the year, has disappeared. On Sunday evening some light showers fell, and the sky has ever since continued black and cloudy. The most singular phenomenon of all is, the remarkable and steady fall of the barometer, which has been gradually sinking for four days, and has now got to a point rarely attained by it. The following are the readings of the Observatory Standard since Thursday, when it began to fall—they are given both as read from the scale, and as corrected for temperatures, capillarity, &c. The hours are very nearly those of daily maximum and minimum :—

	4 A.M.		10 A.M.		4 P.M.		10 P.M.	
	Read.	Cor.	Read.	Cor.	Read.	Cor.	Read.	Cor.
Th. 18,	29.736	29.586	29.792	29.633	29.686	29.529	29.722	29.568
F. 19,	678	526	746	594	462	488	710	557
S. 20,	688	538	768	586	632	475	710	555
M. 22,	575	421	630	471	494	338	566	411
Tu. 23,	510	357	572	412	489	331		

" As no tempest has presented itself here, such as these indications would have inclined us to expect, we are led to infer that within the last four days a hurricane has been raging within a few hundred miles of us, the effect of which has only been manifested here on the barometer. The influence of the Madras hurricane last October was very conspicuous, but nothing like this."

" For the following accounts from Cochin and Tellicherry, we are indebted to the kindness of Capt. Biden, the Master Attendant:—

" *Cochin.*—The Ship *Hero of Malown*, which left these Roads on the 25th ultimo, was wrecked on the 26th or 27th near Alleppee—all the crew with one exception were saved, and they have arrived here this day.

" *Tellicherry.*—During the night of the 31st, two Pattimars were driven on shore a little to the southward of the flag staff, and were soon knocked to pieces by the heavy surf. On the 1st instant, another Pattimar was driven on shore to the Southward of the flag staff, and on the 2d, one was swamped at her anchors and went to pieces—the above wrecks have been caused by a heavy rolling sea."—*Madras Athenæum.*

12*th June.*—Ship Julius Cæsar, Wingate, from Aden 18th April, and Mocha 11th May.

Remarks.—Julius Cæsar in latitude 12° 51′ N., longitude 58° 28′ E. experienced a heavy gale of wind from S. E. to W. on the 25th May, which continued till the 29th, in latitude 9° 56′ longitude 66° 30′ E. Lost all our sails, and sprung the head of the main mast.—Saw the Hindostan steam ship pass Mocha on the 7th May.

At Hyderabad, the storm commenced at N. E. veered to N. W. and S. W., and then at N. W. again with a greater fall of rain than had been *known* at this season for many years, upwards of 9 inches in 36 hours. Gale commenced on the 22d, and lasted all the 23d as per letter.

Ship Hyderabad from Bombay.—The *Hyderabed* had bad weather at Mangalore on 21st, 22nd and 23rd, wind N. W. to West, much rain. Barometer fell on 21st to 29.41, rose on 21st.

Another report.—The ship *Hyderabad,* Captain Harrison, was at anchor at Mangalore at noon.

21*st May.*— Dark gloomy weather, and fresh sea breeze. P. M. N. W., cloudy and rain increasing towards midnight.

22*nd May.*—To noon fresh breeze (wind not marked.) P. M. strong gales. 9 P. M. heavy gales, hard squalls, and a very heavy sea.

23*rd May.*—6 A. M. unable to ride longer with safety, weighed at 8 A. M. with *uncertain* weather. 10 anchored again. P.M. fresh W.N.W. gales and cloudy; stood to the S. S. W. and South 111 miles, with heavy weather noon 25th, in latitude 6° 57′, having carried the same W. by N. and W. by S. Monsoon to that parellel.

The following is from Captain NEWBOLD, *Assistant Resident at Kurnool, Madras territory.*

I am sorry to say, that my efforts to obtain information regarding the storm of the 22d, 23d and 24th of May last have been unavailing, I therefore lose no time in sending you my own observations made at Yelgode, a village at the western base of the Eastern Ghauts, lying between 78° and 79° E. longitude and 15° and 16° N. latitude, sheltered on the East and North by ranges of hills at from 7 and 10

miles distance, sufficiently high, (from 500 to 1500 feet above the plain,) to influence the direction of ordinary aërial currents. These observations only go to note the fact of the storm's influence having been severely felt in this latitude so far inland, its duration, and general direction. I much regret the absence of a Barometer, particularly on this occasion, where the atmospheric depression appears to have been so remarkable, and so extensively and simultaneously felt over the greater part of Peninsular India; the fall of the Barometer having been noted at Calcutta, Madras and Bombay. From what I can glean from my correspondents, I find that its chief fury was experienced between 15° and 19° N. latitude and from 76° to 84° E. longitude.

At Yelgode it was ushered in by two days of cold drizzly weather, the atmosphere was charged with low clouds that came from the Westward and hung in wreaths on the Eastern Ghauts. The Thermometer fell from 99° at 2 P. M. the hottest part of the day to 76°. On the 22d at 8 P. M. it commenced to blow strongly from the N. and N. W., increasing at 9 P. M. to a perfect gale, attended with rain, but no thunder, which continued with little intermission during the whole of the night. The next morning, at 10 A. M, a lull took place of an hour's duration. At 11 A. M. it recommenced, rain and wind unattended by thunder, as fiercely as before, never ceasing till the following morning, the 24th, when the sky cleared. The wind however continued strong from the N. and N. W. during the day. 25th was cloudy, rainy and stormy, strong gusts of wind from the W. In the night it rained heavily with thunder and lightning. 26th settled rain, calm. 27th settled rain, light winds variable. 28th clear in the afternoon, and weather gradually assumed its usual tone. Though the storm's chief force was expended on the Coromandel coast in the latitudes mentioned, yet it was also felt on the Western coast so far South as 11°. Near Tellicherry between the 21st and 25th of May, about 15 Patimars were wrecked along the coast.

From Tellicherry *on the Malabar Coast, I have the following notice with a register of the weather at Cannanore, kindly forwarded by* J. W. Fraser, *Esq., Collector.*

I do myself the pleasure to enclose some atmospheric observations for the month of May last. You may have taken notice from the public

prints, that we had unusual and very heavy weather during the month, and much loss to the native craft on the coast in consequence, and one English ship was lost to the Southward near Cochin. With us the wind was not remarkable, May being always a boisterous month, from the surf and swell rolling in; *the tides* were most remarkably high; the bad weather also set in very early, and not from the usual quarter. I chiefly, however, forward the enclosed to inform you, that such statements are now monthly transmitted to Madras, and that I should think copies could at all times be obtained from the authentic sources should you deem such expedient.

P. S.—Many of the old inhabitants believe the bad weather they for ten days experienced and suffered so much from, not to have been the regular "Monsoon."

Your's truly,

Tellicherry, July 12*th*, 1843. W. H. Fraser.

Register of Meteorological Observations kept at Cannanore for the Month of May, 1843.

Dates.	10 A.M. Barometer.	10 A.M. Dry Therm.	10 A.M. Wet Therm.	10 A.M. Depression of Wet Therm.	4 P.M. Barometer.	4 P.M. Dry Therm.	4 P.M. Wet Therm.	4 P.M. Depression of Wet Therm.	Self-Registering Thermometer. 6 A.M. Dry Ther.	Wet Ther.	Depression of Wet Thr	Maximum.	Minimum.	Pluviometer in inches and 100ths from noon to noon.	Howard's Pluviometer. Dys. Inches.	Dys. Cents.	Nigt. Inches.	Nigt. Cents.	Whewell's Anemometer taken at 5P.M. 10ths in the scale.	Direction of the winds.	Weather and prevailing clouds
18	29 762	85	81	4	29.688	88	84	4	81	79	2	89,5	77	0	..	..	..	..	.5	N. W.	Mornings white extensive cumuli, sun out and hot, calm, P. M. Partially overcast, evening horizon dark and threatning all around, nights, calm but still and close.
19	29.730	87	82	5	29.680	87,5	84	3,5	81	80	1	89	80	0	..	..	..	..	.3	ditto,	
20	29.756	85	80	5	29.692	89	83	6	82	79	3	85	78,5	15	..	..	..	20	·0	ditto,	
21	29.741	83	80	3	29.650	84	79	5	81	79	2	81,5	78	2.45	..	40	2	4	.5	N. N. E.	Morning overcast with dark clouds cool and refreshing airs. P. M. The Monsoon appears setting in, sky wholly overcast with heavy clouds, rain, some thunder and lightning ; evening very wet and gloomy.
22	29.676	81	78	3	29.676	80	77	3	80	77	3	81	77	1.35	..	73	..	65	.0	ditto,	Last night very heavy rain with thunder and lightning and high wind for some hours. The morning universally overcast, and frequent light showers, air cool and damp. Afternoon universally overcast, rainy and squally, night wet and gloomy.
23	29.686	79	77	2	29.612	81	79	2	77	74	3	84	74	5.95	2	36	..	39	.3	N. N. E.	Morning universally overcast and frequent light showers, air, cool and damp, P.M. Sun continues invisible, squalls ushered in with thunder and lightning, intervals between showers calm.
24	29.700	83	81	2	29.624	83	79	4	77	75	2	85	73	.40	..	38	..	..	.2½	N. W.	Morning densely overcast and universally with heavy dark clouds, raining with thunder and lightning, cool. P. M. Weather moderating, sun out, intervals of blue sky ; night mild, no wind.
25	29.744	82	80	2	29.682	82.5	80	2.5	78.5	76.5	2	82	76	1.65	..	15	1	20	.0	Ditto.	Morning fine, occasionally cloudy, sun out, calm. P. M. Sun out blue sky with white cumuli, night, wet and squally no thunder.

Bombay.—*Ship news 4th June* 1843.—Ship *Caroline*, J. Constable Master from sea.

Intelligence.—Cut away main-mast in latitude 19° 30′ N. longitude 70° 45′ W. Vessel struck by a heavy Hurricane, and on her beam-ends for five minutes, until main-mast was cut away. On sounding Pumps, found four feet water in the Hold.

I now arrange in the tabular form the logs of the different vessels at sea and on the coast, so as to show at a glance the progress of the gale, with the state of the weather at the same moment of time, as far as our records extend.

Tabular view of the Storm of the 20th to 23rd May, 1843.

Date.	Name of Place or Ship.	Winds and Weather.	Lat. N.	Long. E.	Barometer.	Simp.	Ther.	Remarks.
			° ′	° ′				
Noon 9 May, 1843.	Bussorah Merchant, .	W. by S. and fine, midnight, gale at W. by S.	5 52	82 12	29.56*	.. ..	.. ..	On 18th strong monsoon W. N. W. and West.
	Rajasthan, ...	S. E. by E. brisk breeze, P. M. increasing, N. E. at midnight moderate. ..	9 1	88 16	Falling,			
	Coringa Packet, ...	A. M. Tremendous gale E. by S. Noon shifted to N. W. P. M. Abating, ...	Trincomalee West, 10	.. ..	29.45	.. ..	.. ..	18th, Fine, but Barometer fell from 29.70 to 29.50, midnight 29.40 P. M. rising.
	Teazer, ...	S. W. to S. S. W. threatening weather.	12 00	18 28½	29.72	8	86	A. M. Hove to; P. M. made sail; at midnight wind S. E.
	Candahar, ...	Light breeze E. N. E. to E. S. E.	15 26	83 10				
	Euphrates, ...	Fine N. E. by E.	14 51	81 28				
	Julia, ...	Light S. E. breeze midnight steady S. E. breeze. ..	18 05	89 06	.. .. ..	.. ..	.. ..	18th, Calm and heavy clouds in S. E.—Barometer 29.75
	Champion, ...	Light breeze from the Eastward and hazy weather.	15 29	.. ..	29.85			
	Isabella Watson, ..	Close and sultry, at Anchor at Covelong.	.. .. ..	.. ..	.. .. ..	29.36	83½	Heavy swell rolling in on the beach.
Noon 20 May, 1843.	Bussorah Merchant, .	Continued heavy gale W. by S. and W. S. W.	7 20	.. ..	29.26	.. ..	.. ..	Barometer at midnight, 29.26, heavy gale.
	Rajasthan, ...	Hard gale West P. M. W. by S. and W.	.. .. ..	.. ..	29.20	.. ..	.. ..	Wind shifted to West at 4 A. M. Bar. fell 0.8 before Noon.
	Coringa Packet, ...	Moderate till midnight, when heavy gale W. S. W.....	.. .. ..	.. ..	29.50			
	Marquis of Hastings,	Moderate S. by W. to W. S. W.	11 50	95 5				

* Corrected.

Date.	Name of Place or Ship.	Winds and Weather.	Lat. N.	Long. E.	Barometer.	Simp.	Ther.	Remarks.
Noon 20 May, 1843.	Seringapatam, ..	S. S. W. increasing gale...	° ′ 7 30	° ′ 88 50	.. .. ..	.. ..	.. ..	Heavy squalls, thunder and lightning.
	Teazer, ...	Variable from E. to N. N. E. P. M. N. W. gale....	.. .. ..	.. ..	29.70	.. ..	86	P. M. threatening and increasing to a strong gale N. W.
	Union, ...	Freshening from N. E.	15 1	82 37	.. .. ..	.. ..	.. ..	Steering to the Southward.
	At CORINGA, ..	A. M. N. E. P. M. Easterly 10						
		P. M. N. E. fresh breeze...	16 51	82 51				
	Candahar, ...	N. E. P. M. threatening N. E. by East...	16 6	82 13	4. P. M. 29.60	.. ..	.. ..	Gale increasing from noon to midnight.
	Euphrates, ...	Noon North, P. M. N. E. increasing, ...	16 2½	81 40	.. .. ..	.. ..	.. ..	Midnight very threatening.
	Lord Lyndoch, ..	E. by S. to E. N. E. P. M. increasing,..	15 42					
	Julia,..	Noon increasing S. E. by E. squally P. M. E. S. E. and S. E. by E. increasing to a gale.	16 9	88 13	29 75	.. ..	86	Barometer 1 A. M. 29.72 midnight 29.50.
	Champion, ...	Lightning, squally and suspicious looking weather ...	16 9	.. ..	29.85 to 29.75	.. ..	.. ..	Heavy swell from the East saw the land off Narsapore point, At night hard squalls E. and E. N. E.
	At Madras, ...							
	Isabella Watson, ..	Hard squalls N. W. and heavy rain,..	.. .. ..	.. ..	.. .. ..	29 26	84	7 A. M. arrived in Madras Roads.
	At ENNORE, ...	A. M. Light winds S. S. W. P. M. strong gales W. N. W..	13 13	80 26	29.305			
Noon 21 May, 1843.	Bussorah Merchant..	A. M. more moderate S. W. P. M. strong gale South...	9 30	.. ..	.. .. ..	.. ..	.. ..	S. Gale continuing to midnight.
	Rajasthan, ...	Fresh gale S. Wy... ..	8 12	.. ..	29.70	.. ..	.. ..	Midnight hard gale S. S. W.

Dates.	Name of place or Ship.	Winds and Weather.	Lat. N.	Long. E.	Barometer.	Simp.	Ther.	Remarks.
Noon 21 May, 1843.	Tenasserim S. V. ..	Fresh breeze W. N. W. variable P. M. South and S. W.	° ′ 6 49	° ′ 78 3	4 A. M. 29.92 —.75 Noon, 29.90 —.72 4 P. M. 29.90 —.72	.. ..	.. ..	Midnight brisk gale S. W.
	Coringa Packet, ..	Terrific gale, supposed from West to W. S. W. P. M. Moderating, midnight West fine...	5 30	83 40	29.40	.. ..	.. ..	Barometer at midnight 29.65.
	Marquis of Hastings,	Squally Westward and S. W. freshening breeze ..						
	Seringapatam, ..	S. S. W. Increasing gale heavy squalls and gloomy weather.	9 10	88 50				
	Teazer,..	Wind W. by N. or West, and W. N. W. veering to S. W. Noon hurricane. ..	.. ..	.. ..	29.20	.. ..	.. ..	Noon hove to; a complete hurricane; Barometer 2 A. M. 29.70 at 6, 29.40, at 8, 29.30, Noon 29.20, 4 P. M. 29.60, midnight 29.45.
	Union,..	Gale increasing North or N. by W. to midnight. ..	.. ..	.. ..	.. ..	.. ..	.. ..	Running to the Southward.
	At CORINGA, ..	N. E. heavy squalls throughout.	16 51	82 16				
	Candahar, ...	N. E. severe gale increasing to midnight.	15 40	82 40	29.55	.. ..	.. ..	Lying to, heavy sea breaking over the ship.
	Euphrates, ...	A. M. Hard gale E. N. E. Noon N. Easterly P. M. hard gale N. E. 9 P. M. Easterly Midnight E. S. E.	14 40	82 52	28.90	28.80	.. ..	[P. M. Simp. 29.80. At the commencement of the gale

Date.	Name of place or Ship.	Winds and Weather.	Lat. N.	Long. E.	Barometer.	Simp.	Ther.	Remarks.
			° ′	° ′				
21 May, 1843.	Lord Elphinstone, ..	N. N. E. to N. E. Midnight strong gale.. ..	15 45	83 15	Noon 20.	.. ..	.. ..	A. M. Barometer falling from 29.98 to 29.55 ; at 3 P. M. dark gloomy appearance.
	Lord Lyndoch, ..	N. E. by E. to E. N. E. strong gale,.	.. ..	.. ..	.. ..	.. ..	.. ..	Gale commenced soon after midnight at N. E. by N.
	Julia, ...	Noon S. E. strong gale, ..	13 50	86 46	29.40	.. ..	86	Barometer 29.50 to 29.48 severe gale with squalls and fog.
	Champion, ...	Strong gale (Easterly ?) P. M. drawing to E. S. E. ..	15 31	.. ..	29.70			
	At MASULIPATAM,..	N. E. heavy squalls and rain, ...	16 5	81 11	.. ..	.. ..	.. ..	Barometer falling.
	At PULICAT,.. ..	Gale commenced about 11 A. M. North and N. W.	13 26	80 26				
	At MADRAS, ...							
	Brig Bittern, *.....	At 1.30 P. M. gale N. W. ran to sea	.. ..	.. ..	.. ..	.. ..	.. ..	7 P. M. wind N. 10 N. N. E.
	Baboo, ...	2 A. M heavy gale W. N. W.	12 33	82 0	28.48	.. ..	.. ..	Ran to sea from Madras roads at 12-30 P. M. 20th gale increasing to the Eastward. P. M. wind S. S. W. to West.
	Isabella Watson, ..	Blowing very hard N. E. ..	.. ..	.. ..	.. ..	29.16	83½	2½ P. M. Simpiesometer 28.96. 8 P. M. Simpiesometer 28.84. Thermometer 83.
	General Kydd,.. ..	N. N. W. blowing fresh. ..	.. ..	.. ..	.. ..	29.45 to 29.11	.. ..	At noon slipped and ran to sea 8-30 P. M. wind shifted to W. N. W.
	At ENNORE,.. ..	Strong gales N. W. to W. N. W. throughout.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	Heavy sea from the Eastward.
Noon 22 May, 1843.	Bussorah Mercant. ,	A. M. finer, gale from South at noon. P. M. South and S. S. E.	12 00	87 24	.. ..	.. ..	.. ..	Monsoon gale, to midnight.

* I have inserted here only a few of the Logs of the vessels which put to sea from Madras Roads; their brief reports mostly affording but few data and agreeing as to the veering of the wind.

Dates.	Name of Place or Ship.	Winds and Weather.	Lat. N.	Long. E.	Barometer.	Simp.	Ther.	Remarks.
			° ′	° ′				
Noon 22 May, 1843.	Rajasthan..... ..	Fresh S. W. monsoon gale..	7 48	91 45	29.60			
	Tenasserim S. V. ..	S. W. brisk gale P M. W. S. W. and S. W... ..	5 3	80 36	Noon 29.30 —40 4 P. M. —80 60			
	Coringa Packet, ...	Moderate and fine.						
	Marquis of Hastings,	S. W. by W. to S. S. E. squally.	14 52	93 57	.. ..	.. ..	.. ..	Cross sea from S. W.
	Seringapatam,.. ..	S. W. by S. heavy gales rain thunder and lightning.	10 0	85 30	.. ..	.. ..	.. ..	Latterly more moderate.
	Teazer.	P. M. wind S. S. W. 5 South.						
	Union, ...	W. N. W. gale.	11 25	85 10	29.60	.. ..	.. ..	From 7 A. M. moderating.
	At CORINGA, ...	A. M. N. E. 5 P. M. Easterly heavy gales and rain throughout.	16 51	82 16				
	Candahar, ...	N. E. heavy gale 10 A. M. S. E. 1 P. M. hurricane at S. E. 6. P. M. hurricane at South.	15 30	83 00	28.83	.. ..	.. ..	2.30 P. M. Hurricane at the highest, 8 P. M. Barometer 29.29 moderating to midnight.
	Euphrates, ...	5 A. M. hurricane S. E. by S. noon S. S. E. P. M. hurricane at South 7 P. M. S. S. W.	14 08	82 29	.. ..	.. ..	.. ..	6 P. M. Barometer rising, 8 P. M. Barometer 29.20. Midnight hard gale.
	Lord Elphinstone, ..	Severe gale N. E., E. N. E. and East, 1 P.M. veered from East to E. S. E. and S. E.	15 0	82 26 (?)	29.8 29.0 28.90 28.80	.. ..	.. ..	Noon terrific squalls.

Date.	Name of Place or Ship.	Winds and Weather.	Lat. N.	Long. E.	Barometer.	Simp.	Ther.	Remarks.
Noon 22 May, 1843.	Lord Lyndoch, ..	Noon hurrieane about N. E. by E. shifted at 1 P. M to S. W.	.. ..	.. ..	.. .. ..	.. ..	.. ..	Barometer 10 A. M. 28.35 and at ¾ past noon 27.95 when hurricane veered to S. W. after a calm of ¾ of an hour.
	Julia, ...	S. E. to S. S. E. severe gale P. M. S. E. to S. Midnight South, ...	° ′ 13 47	° ′ 86 05	29.45	.. ..	86	Bar. 29.45 to 29.40 at 11 P. M.
	Champion, ...	E. S. E. P. M. hurricane from South, ...	.. ..	.. ..	29.60 to 29.20	.. ..	.. ..	P. M. lull, and drawing to S. W. shifted to hurrieane at South.
	At Masulipatam,..	5 P. M. gale inereasing N.E. and N. N. E.	.. ..	.. ..	29.08 to 28.76			
	At Pulicat,.. ..	Gale abating about noon. ..						
	At Madras,.. ..							
	Brig Bittern,.. ..	5 A.M. wind *shifted* to West.	12 15	82 51	29.40	.. ..	.. ..	P. M. Wind S. W.
	Isabella Watson, ..	8 A. M. furious gale N. W...	.. ..	.. ..	.. .. ..	.. ..	.. ..	3 A. M. Sympiesometer 28.64, Thermometer 83, Noon Madras by aecount W. by N. 70, 2 P. M. Sympiosometer 28.70, 3 P. M. 28.84 moderating; wind *flew* round from N. W. to West and at 4, S. W. moderating to Monsoon gale by 23d.
	General Kydd, ..	Abated.W. N. W. or N.W.	.. ..	.. ..	29.18 to 29.27	.. ..	.. ..	2 A. M. Wind shifted to S. W. by W. 3.30 was dismasted Noon 68 miles 8½ S. from Madras P. M. moderating.
	At Ennore, ...	A. M. N. W. P. M. W. N.W. midnight West and moderating	.. ..	.. ..	29.3	.. ..	.. ..	Strong gales throughout and heavy sea from Eastward.

Date.	Name of Place or Ship.	Winds and Weather.	Lat. N.	Long. E.	Barometer.	Simp.	Ther.	Remarks.
Noon 23 May, 1843.	Bussorah Merchant, .	S. S. W. steady monsoon gale.	° ′ 14 31	° ′ 86 30				
	Tenasserim S. V. ..	West to S. W. by W. brisk gale.	6 49	82 58	4 P. M. 29.80 —.55			
	Marquis of Hastings,	N. W. veering to S. W. monsoon.	16 42	92 4				
	Teazer, ...	About South moderating ..	.. ..	.. ..	29.66	.. ..	86	
	Union, ...	.. ..	11 50	82 30	.. .. ..	.. ..	.. ..	Vessel founded a little before noon, near this spot.
	At Coringa, ..	1 A. M. S. E. at 3 Southerly moderating to fine at midnight.	16 51	82 16				
	Candahar, ...	Hard gale S. S. W. ...	15 38	83 20				
	Euphrates, ...	2 A. M. S. S. W. moderating to noon and P. M.	16 17	83 44				
	Lord Elphinstone, ..	5 A. M. Wind South, 8 P. M. moderating at S. S. W...	.. ..	.. ..	28.75 29.0 29.5 29.10	.. ..	.. ..	6 Lost the rudder.
	Lord Lyndoch,.. ..	A. M. moderating to noon, when Wind about S. W..	.. ..	.. ..	.. .. ..	.. ..	.. ..	Moderating to a strong monsoon on 24th latitude 16° 24′ N.
	Julia, ...	Noon gale from South P. M. moderating.	15 47	85 20	29.40	.. ..	86	Barometer 29.40 to 29.55.
	Champion, ...	Drawing to S. S. W. and abating to noon.	16 0	83 20				
	At Masulipatam, ..	2 A. M. wind veering to E. S. E. and then S. and S. by W. blowing violently..	16 5	81 11	28.98 to 29.30			
	At Madras,.. ..							
	Brig Bittern, ..	.. ..	11 36	83 25	29.40			
	General Kydd, ..	Monsoon gale.	13 47	82 3	29.44			

Chart
TO THE TENTH MEMOIR
on the
Law of Storms
IN INDIA
BEING
The Coast Hurricane
of 21st & 22nd May
1843
By Henry Piddington
Black Pagoda
Ganjam
Vizagapatam
Samulcotta
Masulipatam
Pt Divi
Probable track of the Storm
MADRAS
Pondicherry
Trincomalee
Pt Pedro
Coringa Packet Storm
Batticalo
CEYLON
Point de Galle
Andaman Is
Little Andaman
Preparis
Rapatkam
Vizagapatam
Ganjam
Chedaba
Nicobar
Centre 21st May

SUMMARY.

I proceed now to consider in detail the evidence afforded by these documents for laying down the track of this storm as I have traced it.

The first log is that of the Bussorah Merchant, which I notice to remark that she was evidently carrying a heavy monsoon from the 19th May, on which day she reached Point de Galle, to the 22nd and 23rd on which last day she had reached 14° 34′ N. longitude 86° 30′ E. steering thus as it were from the South point of Ceylon towards the middle of the Bay on those days, and before the monsoon. The next document is the log of the Rajasthan, which ship being bound to the Southward, was from the 19th at noon, when in latitude 9° 1′ N. longitude 88° 16′ East, standing to the S. S. W. with the wind from S. E. by E. to E. and N. E. At 9 A. M. on the 20th she had the wind at N. E. which at 4 *shifted* to the Westward, and was a strong gale at West by noon, the Barometer having fallen very considerably, the ship running to the Eastward.

The fall of the Barometer is somewhat loosely given as being *about* 80, but it must have been a very remarkable one for those latitudes, and I am thus inclined to suppose that this vessel had a storm passing to the Northward of her at about noon on the 20th, when she may have been in latitude 8° 35′ N. longitude 88° 55′ E. She was standing to the Eastward from 5 to 7 knots per hour, and the storm travelling the other way, which will account for the suddenness of the fall, as also that by noon of the 21st she had the storm moderating.

It was of small extent, for as seen by the chart the Seringapatam was only bringing up a heavy monsoon, about 90 miles to the South of the supposed centre for this day, which was most probably the date of the beginning of the vortex.

Passing over the curious log of the Coringa Packet and that of the Tenasserim, both of which I shall notice in another place, we have next for these days, the 19th, and 20th the log of the transport Teazer, which vessel hove to on the 19th May, *on account of the threatening weather* in latitude 12° N. 81° 28′ E.; her Barometer at 29.72 and having stood on a little again, hove to on the 20th, on which day at noon I take her to have been about in latitude 11° 18′ N. longitude 82° 40′ E. In the afternoon of this day the storm had commenced with her in a gale from

N. W. and she scudded with it to the E.S.E. We shall return to her log when discussing the place of the centre of the storm for the 21st, but I may remark here, that we can barely suppose the storm of the Rajasthan and that of Teazer to have been the same.

On the 21st, we have the Teazer with a gale from N.W. since the afternoon of the N.W. and at noon on this day, after scudding with a tremendous heavy gale from the Westward, broaching to in a hurricane, with the Barometer at 29.20, and afterwards rising. This must place her position on that day very close to the centre, and that centre about due North of her.

The ships Lord Elphinstone, Lyndoch, Candahar, Champion and Euphrates* were all on this day off the low land at the mouth of the Godavery and Kistnah, and it will be noted that the trending of the coast just to the South of their position, or in latitude 15° North, from N. E. and S. W., becomes North and South, and the high land recommences in about Lat. 15° to the Southward, leaving the valley and delta of the Godavery to form a wide extent of low land. The Euphrates, the outermost of these vessels, was at noon on the 21st about 120 miles from False Point. They had all gales from E. N. E. to N. E. with falling Barometers, and the Julia, which ship was far to the N. Eastward, and about in the middle of the Bay, had the wind at S. E. We shall thus, I conceive, not be far wrong if we consider the centre of the storm at noon on the 21st to have been about in longitude 85° and in latitude 11° 20′. There is perhaps a little anomaly in the wind marked in the log of the Bussorah Merchant, which is said to have been S.W. A. M. and South P. M. which would allow us to call the wind S. W. by S. at noon, while in strictness she should have the wind S. W. by W. or two points farther to the Westward. This is not of any great importance when we recollect that she was bringing up a heavy monsoon, and that the small storm of the Rajasthan on the 20th (if there was one) would necessarily occasion some irregularity hereabouts.

On the other side of the circle also we have some slight anomalies of the same kind, in the winds marked in the logs of the Bittern, Baboo, &c. which were evidently, at this time, in part those deflected from the

* I have marked only the tracks of the Candahar, Euphrates, and Union to avoid confusing the chart with too many of them.

shore and in part the monsoon. For the 22d we have first the logs of the ships off the mouth of the Godavery as before, all of which had had the storm commencing on the 21st at about N. E. and drawing gradually to E. N. E. and E. S. E. according to their positions.

They had it on this day, by noon, a hurricane at S. E. to S. S. E. veering rapidly to South and S. S. W. as it passed them. With the Lord Lyndoch and Champion indeed it was a *shift* of wind, but we have not unfortunately their positions to any accuracy; indeed those positions which are given, though most creditable to the care and attention of the commanders of the ships, must still be taken with much allowance; for, in the position they were, there was not only the usual causes, drift, leeway and heave of the sea operating, but moreover the "storm wave," "storm current" and probably an outset from the floods of the Godavery, all combining to affect the calculated position of the vessels. As however the whole of the ships were, like a dispersed fleet, within a circle of 120 miles in diameter, it will be seen by the chart that in placing the centre for this day at noon in latitude 15° 45′, longitude 82° 7′; we shall as nearly as possible give the ships the winds veering as they really did, as well as to the three stations of Masulipatam and Coringa, at the first and Southermost of which, Masulipatam, the storm was increasing at 5 P. M. of the day from the N. E. and N. N. E. shewing evidently that its track towards the shore was to the South of that port.

On the 23rd we have the storm moderating, with all the ships in the offing, to a regular monsoon gale, and on shore at Masulipatam veering also to the E. S. E. and subsequently to the S. and S. by W. We do not learn where the centre passed inland, as there are no European stations between Masulipatam and Ongole, a distance of 95 miles: it is probable that the centre *landed* somewhere between these two stations. I have carried my strait line near to Ongole, but not meaning thereby to indicate that we have any knowledge of the exact point at which the centre struck the shore. It was I think more to the North, as the storm would probably travel up the valley of the Kistnah.

At Madras and with the ships which put to sea from the roads of that port, the storm was, as it should be, on the Southern quadrants of a circular, one passing to the North East and North of that point, a gale veering from N. N. W. to N. W. and West, and subsiding into the re-

gular monsoon, which we must always allow for in considering the effects of a storm at this season of the year.

For its track inland, all we can say is, that it was, as appears by the newspaper report, most severely felt, both as a storm and in the shape of inundations arising from excessive rains, through the Guntoor and neighbouring districts, which are more or less in a line between Ongole and Hydrabad, and that it must have passed to the North of that city, being there first a gale from N. E. and veering to N. W. and at Yelgode, which is situated about 110 miles South of Hydrabad and thus on the Southern side of the track, it was always a storm from North and N. W.

The heavy surfs on the Malabar coast, alluded to in Mr. Fraser's letter, with the threatening weather at the ports of Mangalore and Tellicherry, and the remarkable depression of the Barometer at Bombay, are all proofs that the storm was very widely felt as to its general atmospheric influence; but we cannot for want of a date connect the dismasting of the Caroline or the storm of the Julius Cæsar with our data, from distance, time, and the want of all intermediate evidence. We may presume it not improbable that like the Calcutta storm of June 1842, it was "lifted up" by the table land of the Deccan, and perhaps descended again in the Arabian sea, but of this we have no evidence; such as we have, I have placed upon record, because it is of great importance to have even the imperfect notion which it gives of these curious passages of storms over the Ghauts.

Rate of Travelling.—We have only one day, 21st to 22nd, from which we can take any safe data for its rate of travelling at sea. The distance between these two centres is 240 miles, which gives exactly 10 miles an hour, and from the centre of the 22nd instant to a supposed point 50 miles to the North of Hydrabad, where we may take the centre to have been at some time on the 23d instant, is about 350 miles, which for 36 hours is also about the same rate. I need not add that this last datum is of course almost guess work, but it serves to shew that the storm probably had not, in this instance, experienced much retardation, in its course up the valley of the Godavery, which it seems to have followed at least for some distance.

It is then an instance, and to these researches a new one, of a storm apparently generated in the centre of the Bay at the change of the

monsoon and travelling up on a N. Westerly course, the track from the 21st to the 22d is N. 48° W. towards the low lands of the Deltas of the great coast rivers, and it forms thus a new track on our storm charts, and an addition of much importance to our knowledge.

I must not close my remarks without adverting to the very curious log of the Coringa Packet, which vessel evidently had on the 19th one of those small hurricanes (for we may so term them) which though of limited extent, are, during the short time they last, excessively severe. My readers will probably recollect that of the Cashmere Merchant off the Island of Preparis on the 21st November, 1839, which is described and delineated on the Chart to my Second Memoir, Jour. As. Soc. Vol. ix. pp. 107, 397. and that in the Sixth Memoir also there are instances of their occurring in the China seas. These sort of hurricanes are not uncommon it would appear off Ceylon, for H. M. S. Centurion was totally dismasted, and nearly foundered in one on the 4th December 1803, which lasted only a few hours; and I have other instances of the kind on record amongst my materials for a Memoir on "The Old Storms of the Bay of Bengal."

The rise of the Barometer when the water spout had passed under the stern of the Coringa Packet, and the heavy rain which it brought with it, are facts of much interest. The gale of the 21st I consider to have been the usual monsoon one, as though severe it was accompanied by a rise of the Barometer. The hot and cold blasts noted in the log of the Lyndoch, and the fact that Masulipatam was inundated from the sea, are also of much interest. The Lyndoch's Latitude on the 30th has been by mistake printed 18° 42′, it should have been 13° 42′.

An Inscription from a Tablet in a Buddhist Monastery at Ningpo *in* China. *By* D. J. Macgowan, *Esq. M. D. Surgeon of the Ningpo Hospital. With a Plate.*

We have lost no time in lithographing this curious inscription, so as to submit it to the learned. We have, we think, recognised two of the characters in the Lama formula of Om-Ma-Ni-Pud-mi-Om as written in the Uchen character, of which a plate will appear in the next or following number, accompanying remarks by Lieut. Cunningham, B. E. on Moorcroft's Travels, &c. We incline to the opinion that the tablet will be found to be a mystic form of the Buddhist Lama's ejaculation in which

perhaps the elements of the letters have been subdivided? or are written in their primitive forms? To Dr McGowan's closing paragraph we heartily respond, and our readers will have seen that the Asiatic Society has not been wholly inattentive to the great field of research which is opened in China. We trust that amongst the many Europeans of learning and talent who are now resorting there, it will not be forgotten that our Journal and Researches offer a ready means of publication.—Els.

The tablet is of wood painted black, the characters are red. It is about six inches square and is placed in a small frame. A light is kept burning constantly before the Tablet, which is regarded with great veneration.

At the margin is an inscription in Chinese, of which the following is offered as a translation :—

" A mysterious Tablet to dispel the evil influences of northern realms."

The priests in charge of the temple can give no further information concerning the Tablet than that it has been in their Temple for more than a century.

The priesthood, as well as all foreigners who have seen it, are anxious to ascertain to what language the characters belong, and if possible to obtain a translation. It has been shown to many philologists in China, but none could throw any light upon it; some supposed it to be Thibetan, but Dr. Hæberlin of this city informs me that he cannot recognize in the inscription any one of the three form of characters which have been or are now employed in Thibet.

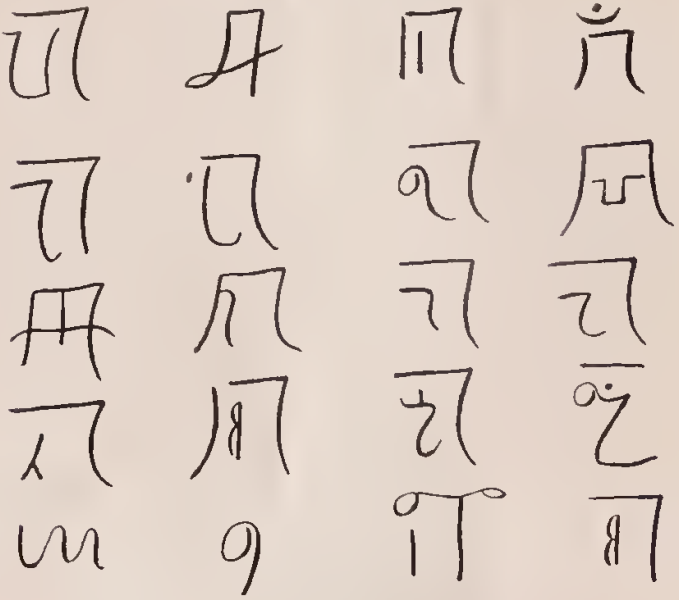
With this explanation I take the liberty of presenting the accompanying copy of the inscription to the Asiatic Society, trusting that some of its learned members may be able to decipher it.

The investigations of the members of that institution have been pursued with so much zeal in India, and have been attended with so much success, that there is abundant reason to hope that it will not be inattentive to the great field for scientific research which has been opened in the neighbouring empire of China, perhaps at the present time the most interesting part of Asia to orientalists.

Danl. J. Macgowan.

An Inscription from a Tablet in a Buddhist Monastery at Ningpo in China

Communicated by D. J. Macgowan Esqre. M.D Surgeon of the Ningpo Hospital



A Description of the Country of Seisthan, By Lieutenant R. Leech, *Bombay Engineers, Assistant on a Mission to Cabool. From the Political Secretariat of the Government of India.*

The first published description of Seisthan appeared in Vol. ix. No. 103 of this Journal: it was by the late Lieut. E. Conolly, and was followed in No. 112, by a Journal of his route. Our readers will find a comparison of this notice with Lieut. Conolly's far from uninteresting, as corroboration of the sound observations of both Lieut. Leech and his predecessor in this isolated, and unknown tract.—Eds.

Description of Seisthan.

The ancient name of this country by the Hindoos was Shivasthan (शिवस्थान) and it is said to have had many Kings of that Sect, of whom the most famous was Rajah Saspal; the Mahomedans called it Zabulisthan, and boast that it produced the father of Rustom. The country has never recovered from the waste to which it was laid by Tamerlane.

Tribes.

The Seistanees are divided into three tribes; viz. the Kaiyanees, the Sarbandees, and the Sarkees.

Boundary.

The boundaries of Seisthan, are Jalalabad, Nasirabad, Zerkoh Sekwa, Dashtak, Burj Alam Khan, Janabad, and Jalalabad. The western boundary is the Koh-i-Khaja, on the top of which is the ruin of a populous city said to have been captured from the infidel Hindoos by the fabulous Rustom; the place is inhabited by a tribe called Arbaba, in small families, having no chief. This is the fort from which Nadir Shah was obliged to retire after a two years siege. This hill fort is situated in the lake of Amoo, into which the streams of the following valleys discharge themselves, viz. Arghastan Zarnak, Arghandav, Helman, Khash Rodh, Zarnak Adraskan, Rod-i-gaz. In the time of Norshirwan the Just; Kila-i-beest was the northern boundary.

The Seistanees are said to have torn the mandate of the Arabian prophet, and to have been cursed that they should never reign themselves, or enjoy peace under another reign.

Domestic Animals.

The domestic animals of Seistan, are cattle in abundance, Dumba Sheep and Goats: there are no Buffaloes, and Horses

and Camels do not live long, on account of swarms of white flies that attack them.

Produce, &c.

The country is flat and sterile in general; rice, wheat, and barley are however produced in some parts.

Among the fruits, grapes are scarce, and Melons of both kinds plentiful and good.

Wild animals.

The wild animals are hogs and hares, of which there are a great abundance, jackals, foxes and others (in lake Amoo.) In the same lake, are also fish of a large kind, and wild fowls in great number, among which is a large bird called Koo (3″) 3* of which are caught on an average a day. The down of this bird is much esteemed for stuffing pillows, it is sold in Candahar for — Rupees the Tabreez maund. About 300 others are also caught a-year, a large skin being sold in Candahar for 8 Rupees; about 3000 other wild fowl are caught a-day on the lake in the following manner:—

Method of catching wild fowl.

The lake for some distance from the shore is covered with reeds, and each fowler has his own fowling ground; spaces are cleared in the reeds in which the snares are set. The water of the lake being clear the fowl are able to distinguish the small fish on which they feed in these small pools, for which they dive, and thus are caught.

Creed.

The inhabitants of Seisthan are for the most part Sheea Muselmans. There are few Hindoos and a few Belochees (who are Sunnee Mahomedans.)

Language.

The language of Seisthan is broken Persian. In a vocabulary of tow hundred and fifty words I only failed to trace the following to Persian, viz. gocha, a boy; kenja a girl; maka, mother; khurroo, a cock; kara, kind; magas, a calf; toor murgh, a cooked egg; khaya, a raw egg; dokh, unburnt brick; kang, back; kul, breast; lambas, cheek; damakh, nose; galov, melon; katic, cooked meat; koodh, deaf; kul, crooked; bapeer, grandfather; too in tabare; there, garang, heavy, paz; cook (imperative) baghan; make smooth, (imperative) tertarata, nine (9); zyada, thirteen (13.)

Principal men.

The principal men of Seistan are as follows viz.

Jalaladeen Khan, of the tribe of Kanjanœ (the tribe of the former

* Note.—So in MSS.

Royal family) he has a brother Hamza Khan, both are sons of Bahram Khan, and grandsons of Suleman Khan, descendants of Malic Mamood Seistanee, Shah of Meschid; he holds the fort of Jalalabad containing 500 houses, Bangar 400 houses, Shaitan 50 houses, and other smaller forts; he could collect 3000 men all armed with matchlocks. He some time ago, gave the daughter of his deceased uncle, Nasir Khan, in marriage to Shah Kamran, with whom he is on friendly terms, and assists him with men, when required. About four years ago Mahomed Razad Khan, Sarbandee Seistanee, and Aly Khan the son of Khan Jan Saiyaranee Baloch, by Mahomed Razad Khan's sister, and Hasham Khan Sharkee, of Seistan, joined their forces, and expelled Jalaladeen from Jalalabad, Nasirabad, Kackhoon, &c. &c. forcing him to take refuge in Joaeen, a place belonging partly to Seistanees and partly to Polalzais. The Jalaladeen despatched his son Nasir Khan to Kamran for succour, who granted it, invaded Seistan and reseated Jalaladeen in his possessions. The chief has lately adopted the Sunnee creed.

Hamza Khan.

Hamza Khan was formerly at enmity with his brother, the above-mentioned Jalaladeen: but was reconciled to him by Shah Kamran, and is now subject to him. He has married the sister of Mahomed Razad Khan, but he and his brother are not on good terms with the latter, neither are they so popular in Seisthan as he is.

Mahomed Razad Khan.

Mahomed Razad Khan Larbandee Seistanee, has the districts of Sekwa Husenabad, Pusht i Dasht Shiling, Warmal Doulatabad, Chung i Murghan, Burji Hajie, &c. &c. He could collect 5000 men, 100 of which would be cavalry. He is on friendly terms with Aly Khan Sanjaranee Baloch, who has lately taken the fort of Chalknasoor from Kamran, since the latter has been besieged by the Persians. Lulf Aly Khan, the son of Mahomed Razad Khan, was a hostage with Kamran, he was released with the sons of the other Seistanee Chiefs in the Shah's late campaign against Candahar; Kamran has given one of Mahomed Razad Khan's daughters in marriage to a son of vizir Yar Mahomed Khan, and has himself married a sister of Aly Khan's. Before Kamran invaded Seistan, Mahomed Razad Khan was on good terms with the Sirdars of Candahar, and in the war between Kamran and Persia, is neutral.

Hasham Khan Sharkee, Seistanee, holds Dashtak, Palgee, Kimmak,

Hasham Khan. Wasilan, &c. &c. He could collect 400 men, he is of old a dependant of Shah Kamran, and gives succour of troops and not tribute; he is on good terms with the Balochees, and has a superficial friendly intercourse with the Sirdars of Candahar.

Ardab Husena was governor of Khash. Kamran took the place four years ago and him prisoner; he afterwards set him at liberty and gave his daughter in marriage to Ghulam Khan, son of Ata Mahomed Khan, the Chief of the Alakszais. Arbab Husena was formerly tributary to Khan Jan Baloch, he has now a superficial intercourse with Candahar.

Chalknasoor was formerly under Meer Alam Khan, Noorzai, the brother-in-law of vizier Tottah Khan, he also held Khash and Kada, he was afterwards killed at Jugdalik,: Vizier Futteh Khan then gave Chalkhnasoor to Khan Jan, Baloch, for marrying a cast-off mistress, called Bajie.

Ally Khan is on good terms with the Sirdars of Candahar; he does Ally Khan. not pay tribute or deference to them, one of his sisters is the wife of Shah Pashand Khan, Governor of Lash, and another has married Assadullah Khan of Kain, (a place famous for Saffron) the son of Meer Alam Khan, Kainie.

Kada is almost desolate, it is held by Arab Husen Khan.

Three miles from Janabad are the ruins of several towns, called Coins. Boonak, where old Coins are found, as also at the ancient seat of the Kairjanee kings, Jarakoo, four miles from Burj Alam Khan.

Dost Mahomed Narvooce, Baloch, could collect 400 men; he holds Dost Mohamed Narvooce.. Burj i Alam, &c. &c. He married the sister of Razad Khan, and gave his own sister to Aly Bhan, Baloch, he is under Kamran.

There is a road from Candahar to Seistan, through Greeskh, as follows:—

Candahar.

Kishki Nakhud,	40 Miles.	several villages of Noorzais.	Sets of Springs.

Greesk.

A strong fort, Government of Mahomed Liddeek Khan.	40 Miles.	A large Town of Panchpaees.	Helman River.

Chàe, Dewala, ..	20 Miles.	No houses, 1 well on the road.	
Chàe, Kurkee, ..	20 ditto.	ditto, ditto,	ditto.
Chàe, Hasaddee, ..	ditto.	ditto, ditto,	ditto.
Fort of Kash, ...	16 ditto.	400 houses of Arbabzais.	River of Kash.
Kadah, ...	46 ditto.	300 houses of Arbabzais.	ditto, ditto.
Chalknasoor, ...	16 ditto.	500 houses of Meer Tajacks.	ditto, ditto.
Janabad, ...	16 Miles.	400 houses of Baloch and Seistanee.	A large river, the different rivers of Seistan having joined.

Here the road divides into two, the right is:—

Jalalabad	10 Miles.	400 houses of Seistanee Kaiyanee.	A large river, ditto.
A ford of Afzalabad, ...	16 Miles.	200 houses of Arbabzais.	ditto, ditto.
Hohi Khaja in the lake by water.	10 Miles.		

There is another road from Candahar to Seistan, through Garmser, as follows:—

Candahar.

Band i Timur, ...	20 Miles.	Several forts of Isadezais.	River of Arghandav.
Kila i Sha Meer, ...	12 ditto.	A small village containing salt pans.	ditto.
A Desert.			
Gumbat, ...	40 ditto.	No houses,	River of Helman.
Hazar Juft, ...	24 ditto.	Scattered hamlets,	ditto.
Myan Pushta, ...	12 ditto.	300 huts of Balochees, in the Spring.	ditto.
Lakkee, ...	20 ditto.	400 huts, all the year, 1000 in the Spring of Balochees,	ditto.
Sappa,...	16 ditto.	200 huts of Kanozais,	ditto.
Behadar,...	12 ditto.	100 huts of Noorzais,	ditto.
Be Nadir i Lateef, ...	8 ditto.	Ditto,	ditto.

Deeshoo, ...	24 Miles.	400 huts of different tribes,	River of Helman.
Pa Lalak, ...	8 ditto.	100 huts of Balochees Baretsees,	ditto.
Hila i Islam Khan, ...	32 ditto.	100 houses of Noorzai Balochees,	ditto.
One stage on the road,			
Dak Delee, ...	50 ditto.	No houses,	ditto.
Sakwa belonging to Mahomed Razad Khan, Seistanee.	24 ditto.	ditto.	ditto.

(Signed.) R. Leech,
Assistant.

Date. 1839.	Names of Places.	Distances. Bsh. Mls.	Fns.	Yds.	Remarks. Water and Ground for Encampment.	Forage and Supplies.	Nature of Road, Rivers, Hills, and General Observations.
June.	Kandahar,						Left Kandahar at 7 o'clock on the evening of the 21st June, from camp near the Herat Gate.
21	Kokaran,	7	0	0	The river Arghand at within 500 yards of the high road, and an irrigation channel, furnishing also an abundant supply of water. Ground for the encampment of a considerable force might be taken up here in a strong position.	The Jowassa plant and grass abundant. Bhoosa (chopped straw) and Lucerne also procurable, but in no great quantity, the greater portion having been carried into Kandahar for sale to the British Army now encamped there.	The first three miles of road pass through the surrounding enclosed gardens and suburbs of the city, and the road crosses the several canals drawn from the Arghandab for irrigating the valley of Kandahar; arrangements should be made previous to the march of any large force in this direction for widening the narrow portions of the road, and sloping down the banks of the water-courses, or what would be better, bridging them. There are two roads, if not more, by which troops and baggage may pass through the suburbs in this direction.
22	Sunjeree,	5	0	0	Water procured from an irrigation canal drawn from the Arghandab, the river one mile distant S. E. of the encamping ground. Ample room for the encampment of the largest force near this village.	Sufficient forage for the camels and horses of a large force at the present season. Bhoosa and Lucerne also procurable.	The road stony in some places, but generally good; an abrupt descent into the bed of the river which would give a morning's work to forty Pioneers to render easy for heavy guns; the ford across the Arghandab easy. The river at this time does not exceed $2\frac{1}{4}$ feet in depth, it having fallen about six inches since the latter end of May. A ford about three quarters of a mile lower down the river is generally pointed out as the best for guns to cross at, and the eighteen pounders passed the river at this point in May 1839, but this ford is to be preferred as crossing the river above the point where several irrigation channels are led from it, which render it troublesome to convey large guns across the low plain on the right bank of the Arghandab. In times of flood, and whenever the depth of the water in this stream exceeds three feet, it must on account of its great velocity, prove a serious obstruction to travellers. It is however stated, that the river never remains at this height for more than a day or two at a time. It is fordable generally almost everywhere. The stream is at this season about 40 yards wide; beyond the Arghandab one or two artificial water-courses have to be crossed, and the labour of a few Pioneers would be required to facilitate the passage of heavy guns.
Carried forward,..		12	0	0			

Date.	Names of Places.	Distances. Bsh. Mls.	Fns.	Yds.	Remarks. Water and Ground for Encampment.	Forage and Supplies.	Nature of Road, Rivers, Hills, and General Observations.
June.	Brought forward,..	12	0	0	N. B.—The two marches above noticed, might without much difficulty be made in one by a small force, where time was an object; but under ordinary circumstances, it would be desirable to allow a day for the Artillery and heavy baggage accompanying an army to cross the river, particularly if the river were in flood.		
23	Houz-i-Muddud Khan,..	14	0	0	The same canal that supplies water at Sunjerce, runs nearly parallel to the road the whole of this march, and affords an abundant supply about half a mile south of the reservoir now dry. Ground for the encampment of a large force, level and ample.	Jowassa for camels in abundance; grass in the immediate vicinity of the camp rather scarce, but plentiful a few miles to the southward in the direction of the river, distant about 5 miles. Several villages (and for Khorasan) much cultivation in the vicinity; some large flocks of sheep and goats observed.	The road lies across a hard level plain across which a Brigade might move in line; water is found close to the road a short distance beyond the village of Budwan, 2½ miles from Sunjeree, and a force halting at the former instead of the latter village, would divide the stages more equally, shortening the last march, which is not however distressing on account of the excellence of the road.
24	Kooshk-i-Nakhood,	15	6	135	N. B.—The foregoing distances not measured for want of a Perambulator, they are taken on estimate, aided by the sketch of a route to Girishk, surveyed by Captain Patton, of the Quarter Master General's Department. Water supplies from two khareezees, (artificial water-courses,) good and abundant. No water found on the road though the beds of several small water-courses quite dry, except after heavy rain, for a short time are crossed on the march.	Jowassa plentiful, grass scarce, but little cultivation near the encamping ground. A village of some note called Maimund lies about ten miles to the N. of the encamping ground, in which direction also a valley opens at some distance, said to be well cultivated.	A hard, level, gravelly road without obstacle or difficulty. At the distance of ten miles from Houz-i-Muddud Khan, the road closely approaches a range of hills of trifling elevation, beyond which a higher range runs in a N. E. and S. W. direction.
25	Khak-i-chapan, ..	9	5	178	Ample ground for a large camp. Water procurable from two kahreezees in sufficient quantity for a considerable force, but it is not so	Forage for camels less abundant than at the other halting places on this route already passed and grass scarce; cultivation and vil-	The road generally good and level, and lies rather deeply on it for a short distance, and some slight undulations in the ground met
Carried forward,..		51	4	93	plentiful as to preclude the ne-		

Date.	Names of Halting Places.	Distances. Bsh. Mls.	Fns.	Yds.	Remarks. Water and Ground for Encampment.	Forage and Supplies.	Nature of Road, Rivers, Hills, and General Observations.
June.	Brought forward, ..	51	4	93	eessity of posting Guards to prevent waste or pollution. The ground for encamping is somewhat irregular, but no difficulty would be found in arranging the disposition of a large camp.	lages with gardens lie two or three miles to the South of the encamping ground, and several large flocks of sheep observed on the march.	with towards the end of the march.
26	Left Bank of Helmund R.	22	3	58	Water abundant, as well from irrigation channels as from the river. Ground for the largest force to encamp on available, either on the low meadow land near the river, or on the dry plain above.	An ample supply of forage for eamels and horses: very little cultivation on this side the river, and but few dwellings, and excepting the villages of ferrymen, no inhabitants observed.	Road generally good and hard, the first part slightly undulating, and one or two sandy patches; about half way is a well, with a scanty supply of water, sufficient for a few travellers, but not to be mentioned in calculating on the movements of even a small force. Further on, are the remains of a garden and artificial water-course, neglected and suffered to fall to decay within the last few years. It would not it is said, be a work of much labour to re-open the water-course, which would allow of this long march being divided; a line of 100 laden eamels made this march in nine hours.
27	Gerishk, R. of Helmund. ..	1	4	0	Water from irrigation channels abundant; the river a mile distant to the South-east. Ground for an encampment sufficient, somewhat broken by watercourses and damp spots.	Forage both for eamels and horses excellent, and most abundant. Many small villages and much arable land, but comparatively little cultivation; nevertheless the produce of the valley of the Helmund is said to be considerable, but the supplies for 500 of Shah Shuja's Infantry now encamped here, are procured from Kandahar. It cannot however be doubted, that considerable supplies of grain could be procured in this vicinity in ordinary seasons, if neeessity compelled a resort to vigorous measures.	Crossed the Helmund River at a point nearly a mile above the usual ferry. The stream is barely fordable for Infantry taking off their arms and accoutrements, and with a strong wind and ripple on the water, could not be deemed fordable at the point where the detachment crossed it. There are however easier fords within a short distance, higher up the stream. Laden eamels crossed the river with ease.
Carried forward, ..		75	3	151	Its depth was about 3 feet 9 inches, width of the widest branch 70 yards, there being two or others shallower and narrower; velocity of current 3 miles per hour. Since 21st May, this river had fallen upwards of four		

Date.	Name of Halting Places.	Distances. Bsh. Mls.	Fns.	Yds.	Remarks. Water and Ground for Encampment.	Forage and Supplies.	Nature of Road, Rivers, Hills, and General Observations.
June.	Brought forward, ..	75	3	151	feet. At that time the stream was crossed by rafts made of rum kegs, which were rowed across by Sappers, but in the event of it being again necessary to cross a force at the time the river is in flood, it is suggested that a suspension bridge of ropes, supported on trestles should be thrown across, the conformation of the banks immediately above the ferry presenting a favorable locality for constructing a bridge of this description; four 5-inch or 5½-inch ropes, with treble blocks, and a few stout spars, (with the lighter lines and gear to the platform, (most of which could be procurable at Kandahar,) would be a sufficient provision for the purpose. The fort of Girishk is an insignificant place, the defences might be taken off by 9-pounders, were this preliminary found necessary, and the place carried by escalade, or a favorable spot where there is no ditch selected for mining, and the wall trenched without difficulty. The gateways also are weak, and the gates of wretched construction. At a short distance from the river, cultivation ceases, and a high gravelly bank, with an almost desert plain above it, extends for several miles to the Northward.		
30	Zeeruk, ..	20	7	85	Water procurable from several kahreezees; water good and abundant; an open plain for encampment.	Forage for horses and camels plentiful; some cultivation in the vicinity, but not to so great an extent as to promise supplies for a single regiment. Fuel here, as at the former halting places on this route, is scarce, the dried bushes found on the plain being almost the only fuel procurable, at most, at the stages; however there are mulberry trees, which would only be used in the event of a greater deficiency of firewood than need be apprehended.	The first six miles of the road on this stage stony and undulating: the beds of several torrents which drain the desert plain crossing the line. After thus much of the road is passed, it becomes level and easy till the fort of Saadaat, 18 miles from Girishk is reached. Beyond Saadaat, the road again passes over undulating ground, within two steep slopes till Zeeruk is close at hand; we passed the fort of Saadaat about midnight, and by the imperfect light, it was difficult to examine the place so closely as was desirable. It appears however to be a strongly planned little *ghuree*, surrounded by a dry ditch, formidable from its section, and the very hard gravel in which it is excavated. The fort was abandoned and the gates removed; but otherwise seemed in good repair. The form of the fort was oblong, with round towers at the angles and on the sides, about 180×140 yards; the ditch enclosed a space of nearly 300×200 yards, the space between it and the walls of the fort being intended to protect cattle and horses from a hostile force. The accompanying marginal section is submitted as an approximation to the truth. There is an abundant supply of water at Saadaat, and a large force might halt there, in preference to proceeding 3 miles farther to Zeeruk.
	Carried forward, ..	96	3	16			

Date.	Names of Halting Places.	Distances. Mls.	Fns.	Yds.	Remarks. Water and Ground for Encampment.	Forage and Supplies.	Nature of Road, Rivers, Hills, and General Observations.
July	Bt. forward	96	3	16			
1	Dooshakh,	12	7	76	Water from kahreezes good; abundant ground for the encampment of a large force available. Passed a kahreez with water flowing from the town of Lur.	Jowassa and grass plentiful; one or two villages and some cultivation in the vicinity, but the villages were deserted, and no supplies could be expected.	The road hard and level the whole way. At the village of Lur, six miles from Zeeruk, water and forage are procurable, and if Saadaat were made a halting place, Lur would form another, at a distance of 5 miles from it.
2	Kooshki-Suffeed,	21	7	195	Water abundant from two or three kahreezes; ground for encamping rather irregular close to the village; ample room available a short distance to the West.	Good forage tor the camels, grass for the horses, more cultivation than we have seen since leaving Girishk, there being several villages in the vicinity. It is possible that some small supplies might be collected here, if compulsion were resorted to.	The first part of the road good and level; excellent water from a kahreez, found at a distance of 3 miles from our encamping ground, and to a force halting at Saadaat and Lur, this would form a third good halting ground, at a distance of $10\frac{1}{2}$ miles from the place last named. At a distance of eight and a half miles entered a range of hills, the path leading over which shortly afterwards became contracted in several places, so much, that a laden camel could barely pass. The ascent gradual, no steep slopes; the road broken and stony; the character of the hills on either side smooth, gravelly, and not abrupt, except occasionally, when the naked rock projects above the surface: this is mentioned as affording a tolerably sure indication, that difficult places in the beaten track might be turned by previous inquiry being made. The apparent summit of the Pass, judged to be about 900 feet above the level of Dooshakh, was reached at a distance of 3 miles from the base, and from this point to the end of the march, the road wound among declivities, and followed the beds of water-courses, passing over much difficult ground. The march proved a very distressing one to the camels, and occupied $13\frac{1}{2}$ hours; but by daylight it is probable easier paths might have been selected. Vegetation in the bed of the water-courses was very luxuriant, indicating either the recent presence of water in the bed, or its nearness to the surface. Tall reeds and tamarisk bushes abounded in the hollow places, and the hills were dotted over with a great many Khunjuck trees. We were informed that another route lay to the westward of the path we pursued, stated to be shorter, easier, and better supplied with water. The route thus pointed out is entered in the map, and is as follows: From Dooshakh to Kurree Khan 6 miles, where there is water: from Kurree Khan to Ujrum 4 miles, water; from Ujrum to a shêla or pool of water called Guswâp 4 miles; from Guswâp to a point half way between Khoosk-i-Suffeed and Washere, 8 miles, water; from the above point to Washere 5 miles. Total 27 miles. By the road we followed the distance is 35 miles. In its present state, the hill path we came over is not practicable for Artillery, but it might be rendered so without great
	Carried forward, ..	131	2	67			

Date.	Names of Halting Places.	Distances. Mls.	Fns.	Yds.	Remarks. Water and Ground for Encampment.	Forage and Supplies.	Nature of Road, Rivers, Hills, and General Observations.
July.	Brought forward, ..	131	2	67	labour, the other road is said to be free from obstacles, but the information obtained on this head is not quite satisfactory.		
4	Washe.	9	5	215	Abundance of water from kahreezes. Ground for encampment irregular, but not otherwise objectionable.	Jowassa and grass plentiful. Many villages in the vicinity of Washere and several gardens; supplies for small parties of travellers are it is understood procurable here, and with previous arrangement and preparation, a few kharwaas of grain might be collected at Washere.	The road runs down a valley with several small villages and enclosed gardens in it, watered by kahreezes led in an oblique direction down the sides of the slopes. The water-course at the bottom being quite dry. The road is hard and good, with a gentle descent the whole way till within a mile or two of Washere, when it is undulating and stony in some places; there is however no obstacle of importance.
6	L. Bank of Khashrood	12	2	97	Excellent water from the river. Ground for a large camp not good, much broken, stony and irregular, but no real difficulty would exist in making a sufficiently convenient disposition.	Forage for camels abundant on the banks of the river. The grass met with not plentiful, and did not appear of good quality. No villages in sight, and the country on either side the river dry, stony, and almost a desert.	The road stony and uneven; at the distance of a mile came on the course of a small stream called Ausiaub, and followed its course for nearly six miles down a narrow valley lying between low hills. The last four miles of the march, the road winds down a dry water-course, road not good, but practicable for Artillery; the descent into the bed of the Khash road steep and bad. Looking up the valley of this river a succession of ranges of mountains, the most distant of which are very lofty are visible to a distance of at least fifty miles. The bearing of the highest peaks about 30° E. of N.; the general direction of the chain apparently E. and S.
7	Ibrahim Jooll, ...	16	7	188	Water abundant, ground for a large encampment not good, the banks of this small stream being high, irregular and stony.	Jowassa not very plentiful, but sufficient for a small force, grass and reeds procurable in the bed of the stream. Bhoosa obtained from villages a few miles distant. Fuel as elsewhere, scarce; but if thought requisite, a stock might in two or three days be procured from the neighbouring hills.	Forded the Khash road, a river formidable during floods, and detaining caravans several days on such occasions; at this season it is 37 yards wide and 18 inches deep, and has a current of 1½ mile per hour. Its banks however bear all
	Carried forward, ..	170	2	127			

Date.	Names of Halting Places.	Distances. Mls.	Fns.	Yds.	Remarks. Water and Ground for Encampment.	Forage and Supplies.	Nature of Road, Rivers, Hills, and General Observations.
July.	Brought forward, ..	170	2	127	the marks of having at times to sustain the rush of an impetuous torrent; beyond the river the road pursued a tortuous course among low hills of conglomerate for about three miles, at which distance a small spring is found a few hundred yards to the north of the road; beyond this point it leads across a hard level plain for about nine miles without any obstacle beyond the dry beds of two considerable torrents. Then at the termination of the plain entered a range of hills of moderate elevation, the path being in some places narrow and difficult, and crossed in many places by the dry beds of mountain torrents. The march proved a very fatiguing one for the cattle, their labour being much increased by a strong N. W. wind, which from this date almost invariably got up an hour or two after noon, and continued to blow from the above quarter till morning during the remainder of the march. The Kohi Doozdan, a large insulated mountain which has been visible during the last three marches was passed to-day, we left it to the south of the road, and the present encampment is immediately below a very lofty and large mountain called Spundow, (Isfundear?) also visible from a great distance.		
8	Nullukh,	13	4	10	Water from a running stream good and abundant. Ground for a large encampment sufficient.	Forage for camels and horses plentiful; very little cultivation near the encampment, though some passed on the march.	The encampment is on the bank of a small stream called the Cherra. The road after leaving our last encampment lay among hills for a mile, then debouched on a plain skirting a range of precipitous and lofty hills for 3½ miles; road good, again turned into another mountain gorge, and ascended the valley for 5 miles to a spot, called Guneeemurgh, where there was a plentiful supply of water from a kahreez, and lights from khails or villages were seen. The road continued to thread a succession of mountain valleys without any abrupt slopes, either ascent or descent, over rather difficult and broken ground till the end of the march, which was accomplished by laden camels in 7 hours.
9	Foot-i-Kusurman,	6	5	95	Good water from a kahreez. Sufficient ground for encamping a large force, passed water on the road at a village called Cherra, where there is also a small fort, and others (all contemptible) seen to the west of the road.	Forage for both camels and horses abundant. Fuel procured from the numerous dry shrubs near the encamping ground. There was some cultivation in the Cherra valley, but none nearer our camp, the country could not afford supplies.	Road among hills the whole way, but not difficult, very high mountains towering before us, the road ascending gradually as we advance towards them.
	Carried forward, ..	190	4	12			

Date.	Names of Halting Places.	Distances. Mls.	Fns.	Yds.	Remarks. Water and Ground for Encampment.	Forage and Supplies.	Nature of Road, Rivers, Hills, and General Observations.
July.	Bt. forward	190	4	12			
10	Sarjwurd Kahreez,	15	0	59	Water from the kahreez good and abundant. Ground for a large encampment irregular, but sufficient.	Plenty of jowassa for the camels, grass rather scarce. There are several villages near the camp, but the inhabitants seem all to have fled. In detached patches there is some cultivation near our present ground.	A difficult road. After leaving Foot-i-Kusurman the road pursues a Northerly direction for about two miles, then turns to the Westward and follows the course of a mountain valley from 3¼ of a mile to 2 miles wide, bounded by lofty and rugged peaks on either side. At the distance of 5½ miles from Foot-i-Kusurman, the summit of the Pass which is supposed to be full 1200 feet about the last encamping ground is gained. The path then descends, and towards the foot of the slope water is found in the bed of a stream completely overgrown by long grass, bushes, and rushes, here the valley widens out to 3 or 4 miles; and the road continues tolerably level till Lurowurd Kahreez is reached. The road over the Pass much broken, crossed by numerous beds of torrents, and in some places very stony. Laden camels would find crossing this Pass by night very inconvenient, by daylight little difficulty is experienced, the march having been accomplished by them in 7 hours; for Artillery the road in its present state is not practicable; but there is no obstacle on the road which the labour of a company of Pioneers might not remove or remedy in two days. If it were necessary to bring guns by this route, they should not be carried up this hill Pass till the road had been improved and reported on, and even then it is probable a strong working party would be required to drag them across the more difficult places. These hills are thickly sprinkled with Khunjuck trees, and many bushes fringe the water-courses; very lofty hills, their height above the level of the sea being estimated at 10,000 feet, rise to the right and left of the road in crossing the Pass.
11	Sheheruk	15	5	115	Abundance of good water for an encampment. Level plain for the encampment of a large force.	Jowassa and grass plentiful, villages and cultivation near, but the inhabitants not willing to sell supplies on any terms.	The road commonly adopted by cafilahs going by this line to Herat is to the Northward of that adopted by our party on this march; it passes by Cheekan, crosses the Furrah road at Doulutabad, and falls again into our line of march, at or near the spring of water called Chah-i-Jehan. The first four miles of road passing over undulating ground, then entered a low but very rugged range of hills, through which the road wound for about two miles; a second range of low hills met with eleven miles from Largebur Kahreez, is crossed without difficulty, and at the twelfth mile the road enters upon the hard level plain which extends for 27 miles to the banks of the Furrah road. The chain of hills on the end of which we came at Foot-i-Kusurman, runs parallel to our line of march, the remarkable peaks called Punj-angoosht, are included in the range, and are seen several miles to the
	Carried forward,	221	1	186			

Date.	Names of Halting Places.	Distances. Mls.	Fns.	Yds.	Remarks. Water and Ground for Encampment.	Forage and Supplies.	Nature of Road, Rivers, Hills, and General Observations.
July.	Brought forward, ..	221	1	186	left. A break in the range occurs a few miles to the west of the Punj-angoosht, the hills retiring to the southward forming a valley, said to be highly cultivated, in the gorge of which is situated the village of Sour; two others were also seen under the range, but night closing in, prevented their position being ascertained.		
12	Shaeewan,	15	2	175	Numerous canals for irrigation. Ground for encampment broken by water-courses and enclosures near the villages, but at a small distance from them ample room.	Abundant forage. The banks of the Furrah road on which we are, very thickly dotted with villages and much cultivation at this point. We are informed, the valley is equally fertile and productive as far as Furrah, 40 miles down the stream. Supplies of grain for our party were procured here without difficulty. Fruit was cheap and very plentiful. It cannot be doubted, that if depôts were previously to the march of an army established at convenient spots on the banks of this stream, partial supplies for an army might be collected. At Sheherut, a field of wheat had just been reaped; at Shaeewan, the harvest had been completely gathered for some days.	For ten miles the road passed over a hard level plain, then slightly undulating ground was met with as we came on the alluvial soil of the river, and from this point to its banks water-courses and cultivation were frequently met with. A high range of hills, with a very remarkable projecting mass at a point between this village and Shaheruk lies to the south of our march. A valley called Durra-i-Khoon Khar, the produce of which is said to be considerable, is pointed out as lying beyond the point alluded to.
13	R. Bank of the Furrah Road, ...	1	3	45	Water of great purity from the river. Ground for the encampment of a large force procurable on the high bank above the river.	Forage for a large force would not be plentiful on this side the river. The low watered ground is on the left bank at this part of its course, and there it is abundant, the grass being more luxuriant than any seen since leaving Girishk, but except in times of flood cattle could ford the river with ease, and find pasture immediately on the other side. Fuel scarce.	Forded the Furrah, a river which must in times of flood be a most difficult one for an army to pass. The bed is very irregular, forming alternate rapids and deep pools, and when in flood the current is said to be extremely rapid; caravans being detained on its banks occasionally for weeks. Its breadth at this season at the point where the detachment crossed it, did not exceed 35 yards, the greatest depth being $2\frac{1}{4}$ feet; the velocity of the current $1\frac{1}{2}$ miles per hour. The bed of shingle; the water of the greatest clearness and purity.
	Carried forward, ..	237	7	186			

Date.	Names of Halting Places.	Distances. Mls.	Fns.	Yds.	Remarks. Water and Ground for Encampment.	Forage and Supplies.	Nature of Road, Rivers, Hills, and General Observations.
July.	Brought						
16	forward, ..	237	7	186			
	Auh-i-koormeh, ...	21	3	50	Water from a spring not very good, but wholesome. The spring amply sufficed for our small party, but of course precautions would be necessary to prevent the soft bed of the water-courses being trodden by animals, or the water wasted. Ground very irregular.	Forage for camels sufficient. The encampment placed on a small meadow of turf which if reserved for the purpose, would afford a supply of grass. No villages or cultivation near the encamping ground.	For 14 miles the road traverses a hard stony level plain. Traces of former irrigation and cultivation for six miles from the river bank, then entered low hills and traced for some miles the bed of a mountain stream full of reeds, in which at 15½ miles distance from the Furrah Road, was a pool of water. Hills round as the rest of the march road gradualy ascending.
17	Chah-i-Jehan,....	17	2	17	Water tolerably good from spring, and ample for a small force, but with a large one, or indeed in any case where water is procured from springs in soft ground. Guards are requisite to prevent animals going to drink from stirring up the mud and polluting the water, and at this place the supply with every care would not more than suffice for the wants of an army. Here (also at Auh-i-koormeh,) the supply might be increased by digging wells previously in the bed of the water-course. Ground for encampment good.	Forage both for camels and horses abundant, vegetation in the bed of water-course very luxuriant, no villages or cultivation near.	The road somewhat rough and stony. At 10½ miles from Ab-i-koormeh, there are two roads leading to the halting ground, that to the left leading up the face of a hill; a short but steep ascent was followed by the horsemen and laden yahoos, the one to the right was taken by the laden camels. Both routes were examined, that to the left is shorter and better than the other, excepting only the steep slope which would be difficult for laden camels; with a little improvement it might be rendered quite practicable for Light Artillery; the difference in distance is about a mile and a half, that entered shews the longer route, on which, though generally not so smooth as the other, there is no obstruction worth noticing.
18	Hyzahad,	20	1	135	Abundance of water from several kahreezes. Ground for encampment ample, and the plain is at this time rather marshy from water of the numerous khareezes, formerly employed in	Forage for camels and horses good and abundant. Fuel scarce. The plain on which we are encamped is amply supplied with water, and is apparently susceptible of high cultivation; villages consist-	The road, generally good and level, at part of it winds through hills of no great elevation, but which in places approach close to the road, and would from their position afford a strong post to a force
	Carried forward, ..	296	6	168			

Date.	Names of Halting Places.	Distances. Mls.	Fns.	Yds.	Remarks. Water and Ground for Encampment.	Forage and Supplies.	Nature of Road, Rivers, Hills, and General Observations.
July.	Bt. forward	296	6	168	cultivation having been suffered to run to waste.	ing of a few houses surrounded by a wall with round gardens attached are numerous, and the whole	wishing to defend the Pass against an army approaching from Herat.
					plain as far as Subzwar, distant about 8 miles, has been thickly populated, and cultivated to a much greater extent than is now the case; still the province of Subzwar is reputed one of the richest, if not eminently the richest district of the present *kingdom* of Herat, and as such, is governed by a man of the first influence in the country, the eldest son of the Prime Minister. The southern route to Herat falls into that we pursued at Subzwar, and a depôt for supplies established at this place, or in its vicinity, would enable an army advancing on Herat from Kandahar to halt and recruit the cattle for a few days before encountering the toilsome marches in advance of this plain. Our halting ground was chosen at the first kahreez met with on the plain advancing from the southward; the most northerly stream we passed on the plain is 3½ miles in advance of our present encampment. It has not been noticed in the proper place, that between Chah-i-Jehan and Hyzabad, pools of water are found in the bed of a water-course called Gundutsan at 4 miles, and again at 7½ miles from the former place.		
21	L. Bank of the Adruskund, ...	22	2	25	Water from the river of excellent quality. As already mentioned, water was found abundant at a kahreez 3½ miles N. of our encampment at Hyzabad on the march. Water was also found at a stream 15 miles in advance of Hyzabad, sufficient for a force. A spring at the top of the Pass 18 miles on road, and water again at 18½ miles. Sufficient ground for an encampment, but rather irregular.	Forage and fuel abundant, the bed of the river being fringed by willows and bushes, among which much dry wood may be collected. No signs of cultivation or inhabitants near the river, nor indeed are any villages seen between the valley of Subzwar and that of Herat.	A fatiguing and difficult march, no force should attempt it. From Hyderabad if it encamped there, a force might change ground to the verge of the cultivation, and irrigated land of the Subzwar plain to the northward, which would shorten the march about 4 miles. It might then halt at the stream called it is believed Khojihomeih, where there is abundance of forage, making a march of 11 miles. The water was said to be brackish, but the sepahies
					and some of the officers drank of the stream, and found it not unpalatable; this arrangement would leave seven and a quarter miles to the river, on which portion of the march a difficult hill Pass has to be surmounted. After leaving the irrigated land, much of which was marshy from the overflowing of the kahreezes, came on a hard stony plain with a gentle ascent, over which we travelled		
	Carried forward, ..	319	0	193	for six miles, then entered hills, and continued ascending 5½ miles by a winding road, when we		

Date.	Names of Halting Places.	Distances. Mls.	Fns.	Yds.	Remarks. Water and Ground for Encampment.	Forage and Supplies.	Nature of Road, Rivers, Hills, and General Observations.
July.	Brought forward, ..	319	0	193	reached a table land, or rather basin, surrounded by low eminences thickly spread with reeds and bushes, and bearing the appearance of being occasionally under water. High peaks rose to the Eastward, the summits of which are judged to exceed 10,000 feet in height above the level of the sea. The table land 2½ miles across, when there is a further slight ascent, the elevation reached being considered 1500 feet above the level of Subzawar. The descent into the valley of the Adruskund is steep, rocky and tortuous, and would require the labour of a company of Pioneers for a day to make it practicable, and for three or four to make it moderately easy for heavy guns.		
22	Serai-i-Shah Bêd,	22	3	195	Water from a stream in front of the Ru-i-serai. Ground for encampment sufficient, it is rather irregular and commanded by a hill to the Eastward. Indeed all the encamping grounds among hills are commanded, on this route.	Forage for camels and horses good and abundant. No supplies of any description procurable.	For 19 miles from the Adruskund, the road is one continued ascent among hills, the elevation attained supposed to be full 1500 feet higher than the spot where we crossed the Adruskund, or 6500 feet above the sea. Forage was observed plenty throughout the march, and water was found at convenient distances the whole way. The road stoney, and in some places difficult, but quite practicable for Artillery. The Road-i-Guz, which falls into the Adruskund immediately opposite our last encampment, runs for nearly 6 miles parallel to the first part of this march.
23	The Rozeh Bagh, ...	21	0	210	Numerous artificial channels of excellent water. Abundance of room outside the garden, with access to water for a large force. Passed a spring of water 4½ miles from our last halting ground. Also a kahreez near the Hour-i-meer Daood, 6 miles from the Roza Bagh.	Jowassa for camels plentiful, grass very scarce. Bhoosa procurable from numerous villages. We are now in the valley of Herat, and not more than 7½ miles from the city.	On leaving the Serai of Shah Bêd, the road ascended for about 3 miles, attaining an elevation of about 700 feet above our last encamping ground, it then commenced a gradual but regular and continued descent to the end of the march, falling it is conjectured 2000 feet. We passed a caravanserai, called the Serai-i-Meer Daood, about 11 miles from the Serai-i-Shah Bêd, but the kabreez which formerly supplied it with water is dried up. From this point the eye ranges over great part of the valley of Herat, but the city is itself concealed by an intervening range of hills, called the Kob-i-Dooshakh; the distant mountains of the Hazaureh country are seen far overtopping a range of hills of considerable elevation on the other side of
	Carried forward, ..	362	5	158			

Date.	Names of Halting Places.	Distances. Mls	Fns.	Yds.	Remarks. Water and Ground for Encampment.	Forage and Supplies.	Nature of Road, Rivers, Hills, and General Observations.
July.	Brought forward, ..	362	5	158	the valley. These mountains appear from this distance to be 12 or 14,000 feet high, but as the Serai-i-meer Daood is considerably elevated above the plain, this appearance may be deceptive. The road is good the whole way from the foot of the hill. The Rozeh Bagh is a royal garden planted with Scotch firs, now of great size and beauty.		
					Water good.		
24	R. Bank of Heri Rood,	4	2	70	Ground for encampment ample, channels for irrigation leading from the river would be convenient in furnishing water for a large camp.	Forage plentiful; a meadow of considerable size on the river bank would supply grass. The quantity of jowassa would depend materially on the absence or otherwise of cultivation. At present a great deal of land has been suffered to run to waste, which has been, and probably will, again be under cultivation. This spot is but 3 miles distant from Herat, within reach of the bazars of the city.	Forded the Heri Rood, a wide shingly bed, over which the river runs in several separate channels, the largest may be 40 yards wide and 18 inches deep; current having a velocity of $1\frac{1}{4}$ mile per hour, a great portion of the water is drawn off at this season for the purpose of irrigation. In the season of flood, the river is deep and exceedingly difficult to cross, the body of water in it however appears greatly inferior to that of the Helmund; an old irregular bridge of numerous arches of unequal size formerly spanned the river. Three of the arches have altogether failed, and the whole structure is in a state of great dilapidation; the river also has partially deserted the bed in which it formerly flowed, a branch flowing round either end of the bridge.
25	Herat, the Kandahar Gate, ...	3	0	180	The city is supplied with water from the river by aqueducts, with wooden troughs running across the ditch. It is stored in large reservoirs of masonry of solid construction arched over. In time of siege an ample supply is obtainable	The valley round Herat is fertile and productive when cultivated, supplies even in ordinary years used always to be most plentiful and cheap; now the city is little better than a ruin, the country round lying waste and desolate,	From our encampment on the meadows and near the river, to the city, the road passes through a succession of villages, all or most of the houses in which are now roofless and deserted, and enclosed gardens, the walls of
	Carried forward...	370	0	188			

Date.	Names of Halting Places.	Distances. Mls.	Fns.	Yds.	Remarks. Water and Ground for Encampment.	Forage and Supplies.	Nature of Road, Rivers, Hills, and General Observations.
July. 25	Brought forward, ..	370	0	188	from wells dug from 12 to 14 feet below the surface.	the valley having been swept of inhabitants by the Persians, few of whom have returned. Forage for camels and horses is abundant; grain, &c. very scarce.	which have been partially thrown down, and the trees generally killed or destroyed. The road is also crossed by numerous water-courses, over some of which, nar-
	Total miles	370	0	188	row and awkward or dangerous bridges are thrown, the road has been paved is quite worn out, and is very bad, but practicable.		

(Signed.) EDWARD SANDERS,
Captain, Engineers.

NOTE.—Our readers will find, that this valuable Route can be traced on the Map accompanying Lieut. Edward Conolly's paper in Vol. IX, No. 103, at p. 724 of the Journal; and we need not remark on its interest alike to the traveller, the merchant, the military, and the scientific man, whose interest or duty, or love of knowledge may lead them to study or to pursue it.—EDS.

(Tuesday, the 6th February, 1844.)

The Monthly Meeting of the Society was held on Tuesday the 6th of February, at the usual hour. The Honourable The President in the chair.

The Meeting was made special, to afford the Members an opportunity of expressing their sentiments on the departure of their old and talented associate B. H. Hodgson, Esq. late Resident at Kathmandoo, who was to embark that evening on board the *Earl of Hardwicke*.

Before commencing the business of the evening, the Honourable the President rose, and in the most feeling and impressive manner, addressed the Members to the following effect :—

"The daily Papers have informed you of the object of this Meeting, but it may be necessary to explain why it has been made special, particularly as to-morrow is the usual day, and it has been determined to adhere to that day except under very peculiar circumstances. On the present occasion, the circumstances are such as to make me feel confident that you will all concur in the propriety of what has been done. Mr. Hodgson sails to-morrow, and I am sure that there is not a Member here present who would not have regretted the loss of the only opportunity we shall ever have of seeing him in this place, and of testifying, as far as we are able, how highly we are sensible of the credit which his labours and researches have reflected on the Society. I am aware, that in alluding to them, I am causing to the distinguished individual of whom I am speaking more pain than pleasure, but I hope he will forgive me, for I feel that you would all consider me as ill discharging the duties of the situation in which I have the honor to be placed, were I to allow such an occasion as this to pass without referring to those labours and those researches in terms of suitable acknowledgement.

"I confess, however, that I am quite unable to speak of them as they ought to be spoken of, but of their variety and extent, you may yourselves be able to form some judgment, when you hear that Mr. Hodgson's contributions to the Transactions and Journal of this Society alone, according to a paper which I hold in my hand, amount to eighty-nine distinct papers.* This, however, is not the extent of the work accomplished by him. He has largely contributed to other scientific bodies as much by the benefit of his correspondence as by his direct contributions, and in addition

* See list in the following page.

to all the mass of research, and all the novelty of information of which evidence is before us in his detached papers, we possess the most valuable of all his works, his book on the literature and religion of the Boodhists, a work the most complete extant upon a subject till lately but little understood, and of the highest importance to the Philologist and the Historian. But this is not all; while engaged in the most difficult and important official avocations he has found time also to enrich our knowledge of Zoology by new observations on known animals, and a series of discoveries of novel ones. But it is unnecessary for me to dilate on these subjects, as all the particulars will be far better explained in the course of the evening by the other Officers of the Society. I will only further observe, that the high reputation which Mr. Hodgson has conferred on the Society, is not merely a local and an Indian one. His name, widely spread with his discoveries among the Scientific Societies of Europe, has carried with it corresponding credit to the Body, as a Member of which he had laboured, and which ought therefore to testify their acknowledgments in a mode creditable alike to their distinguished associate and to themselves.

The Hon'ble the President then proposed.

"That as a testimony of the high sense entertained by this Society of Mr. Hodgson's scientific and literary labours, and also as a mark of personal regard, he be requested to sit to some first-rate Artist for his bust, to be placed in its Public Meeting Room."

This motion was seconded by H. Torrens, Esq. V. P. and Secretary to the Society, and carried unanimously,

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B. H. HODGSON, ESQ.

Contributions to Transactions and Journal, referred to by the Honourable the President.

1828, Account of Manufacture of Nepal Paper,
1829, On a new species of Buceros,
Antilope Hodgsonii. Notice of,
1830, Antilope Hodgsonii. On the,
1831, On the Antilope,
On a species of Felis,
On Scolopacidæ,
On Musk Deer,
On the Cervus Jarâi,
On the Ratwa Deer,
On the Jaral Goat,
On the Migration of Birds,
On the Chirû,
On the Mammalia of Nepal,
1832, Route from Katmandu to Gazedo,
Account of Manufacture of Nepal Paper,
Further illustrations of Antilope Hodgsonii,
Notes on the Cervus Jarai,
Remarks on the Buceros,
1833, On a New species of Buceros,
Description of the Aquila Nepalensis,
Description of the Cricætus Nipalensis,
Migration of the Natatores and Grallatores in Nepal,
On the Wild Goat and Wild Sheep in Nepal,
Description of the Ratwa Deer,
Description of the Buceros Homrai,
Description of the Wild Dog of the Himalaya,
Nipal Zoology,
On the Nepal Military Tribes,
1834, On the Chirû Antilope,
On the Newars,
On Bauddha Inscriptions,
On Buddhism,
On Ancient Inscriptions,
1835, Visit to Simroun,
On Tibetan Inscriptions,

On Sarnath Inscription,
Zoology of Nepal,
On Bearded Vulture,
On red-billed Erolia,
On Thar and Ghoral Antilopes of Nepal,
On Wild Goat of Nepal,
On Wild Sheep of Nepal,
On specific characters of Cervus,
On Nepal Mustela,
1836, On Falconidæ,
Synopsis of Mammals,
On Nepal Ornithology,
On Wild Goat,
On Zoological Nomenclature,
Description of Columba,
Sketch of Buddhism,
On Ursitaxus,
On New Incessores,
On Charadriadæ,
On Falconidæ,
On Yunxinæ.
On Cerithiadæ.
On Hirundinidæ,
1837, On Indian Thrushes,
On Woodpeckers,
On Incessores,
On new genera of Sylviadæ,
On new genera of Raptores,
On new Scolopacidæ,
On Gauri Gau,
On new genera of Plantigrades,
On Language of Buddhist Scriptures,
On the Bibos, or Gauri Gau,
1838, On a Pheasant from Thibet,
1839, On Cuculus,
1840, Hare of Gangetic Provinces and of the Sub-Himalayas; with a slight notice of a strictly Himalayan species,
On the common Monkey; with remarks on genera Semnopitheceus et Macacus, three new species.
Nayakote. A cursory notice of,
1841, Note on the Cervus Elaphus of the Sâl Forest of Nepal,
On the Genera of the Bovinæ,
Glaucopinæ, or Rasorial Crows inhabiting the Northern regions of Nepal,
Conostoma Æmodeus Notice of a new form,
Lagomys inhabiting Nepal, with plate of a new species,
Mammals of Nepal. Classified Catalogue of to the end of 1841, first printed 1832,
Notice of Marmot of the Himalaya and of Tibet,
New organ in the Genus Moschus,
Classical Terminology of Natural History,
1842, Notice of the Mammals of Tibet, with descriptions and plates of some new species,
1843, Description of a new genus of Falconidæ,
Catalogue of Nipalese Birds, presented to the Asiatic Society, duly named and classified by the Donor,
Translation of the Naipalia Devuta Kalyana, with Notes,
Notice of two Marmots, inhabiting respectively the plains of Tibet and the Himalayan Slopes near to the snow, and also of a Rhinolophus of the central region of Nepal,
Additions to the Catalogue of Nepal Birds,
On a new species of Cervus—Cervus Dimorphé,

Books.

Illustrations of the Literature and Religion of the Buddhists,

The following Honorary Member proposed at the last Meeting by the Hon'ble the President, and seconded by the Secretary, was unanimously elected.

H. R. H. John, Prince of Saxony.

New Member proposed.

Lieut. Hopkinson, B. N. I. Assistant to the Commissioner of Arracan. Proposed by H. Torrens, Esq., seconded by Lieut. Phayre.

Read the following list of Books presented and purchased during the month of January:—

Books received for the Meeting of the Asiatic Society, on the 6th February, 1844.

Voyage dans L'Inde, par St. H. Theroulde. Paris, 1843, 8vo.—Presented by the Author.

Meteorological Register kept at the Surveyor General's Office. Calcutta, for the month of December, 1843.—From Government.

The Calcutta Christian Observer, February 1844.—Presented by the Editor.

The Oriental Christian Spectator, January 1844.—Presented by the Editor.

Proceedings of the Geological Society of London, vol. 4, No. 94.—Presented by the Society.

Journal of the Agricultural and Horticultural Society of India, No. 10, 1843, vol. 2d.—Presented by the Society.

The Calcutta Literary Gleaner, No. 10, vol. 2d.—Presented by the Editor.

The Annals and Magazine of Natural History No. 77, 78, 79 and 80.—Purchased.

The London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science, 3d series, No. 153, November 1843.—By the Editor.

A Catalogue of a valuable collection of books on Natural History, arranged in classes according to the Linnæan system by W. Wood.—By the Author.

Journal des Savants, Septembre 1843.—Purchased.

The Zoology of the Voyage of H. M. S. Sulphur during the years 1836-42.—Purchased.

Illustrations of the Zoology of South Africa by A. Smith, No. 18, July, No. 19, November.

Ruffee Buhur, [Persian,] presented to the Society by Nawab Oomdut-ool-Moolk, Bahadoor.

Ruffee-ool-Issahee, [Hindoostanee.]—Presented to the Society by Nawab Ooomdut-ool-Moolk, Bahadoor.

Read the following letter from J. Muir, Esq., C. S:—

To the Secretary to the Asiatic Society of Bengal.

Sir,—I beg to state for the information of the Committee of the Asiatic Society of Bengal, that I have returned to India, and that I have instructed my Agents, Messrs. Colville, Gilmore and Co. to recommence the payment of my Annual Subscriptions as a Member of the Asiatic Society.

I should feel obliged by your acquainting me, whether any progress has been made in the printing of the *Sarira Vidya*, a Sanskrit Translation of Hooper's Anatomist's Vade-Mecum, towards the publication of which I subscribed 1000 Rupees some years ago.

I have the honor to be, Sir,
Your most obedient servant,

Spence's Hotel, Calcutta, 29th January, 1844.

J. Muir,
M. As. Soc. B.

The Secretary stated, that upon enquiry he had learnt from Dr. O'Shaughnessy, that 500 Rs. of the money subscribed by Mr. Muir had unfortunately been lost, having been remitted to Europe to cover the cost of wood cuts from Quain's Anatomy through the agency of Stocqueler and Co., whose bill was dishonored, and the amount irrecoverable. Mr. Muir had been assured, that the printing of the *Sarira Vidya* would be early brought under the consideration of the Society.

Read the following letters accompanying a small box of shells, addressed to James Prinsep, Esq., or Acting Secretary of the Society.*

Much honoured Sir,—You receive therewith a little box with shells destined for the Cabinet of the Asiatic Society. The enclosed letter shall mention you the further, should you be induced to make to me a remittance. Capt. *Meier's* ship *Auguste et Metdwe*, by which you receive this box, shall without doubt take care of your sending; otherwise you can make to me Sundries over London or Hamburgh, and address in the former place. Your boxes to Mr. *Tost*, care of the

* These letters are, it will be seen, printed.

ship's broker, *Cartemdyk*; but inform this gentleman by a letter, that the box is destined for me, and that he might account to me for the expences.

With the greatest respect,

Your most obedient servant,

G. Vodndem Busch, M. D.

Bremen, 20th Feb. 1842. *Member of the Board of Health, &c.*

Much honoured Sir,—It is already a long time that I received from you, care of Dr. Cantor, some shells from Bengal, for which I was very thankful to you. Sometime after the receipt of these shells, I sent a little collection of shells to Professor Wilson, to London, and I solicited him to take care, that it might come to your hands. Never I have heard if this sending has reached you, although I have inquired after it by Professor Wilson. Now as the rare occasion offers to myself that a ship sails from Bremen to Calcutta, I profit of it, and take the liberty to send to you some shells for the Cabinet of the Asiatic Society. I have selected principally the shells of our country, as I think that these shall be rare in Asia, and have adjoined some of American shells. If this sending should be agreeable to the Society, I would be very enjoyed, and shall continue to communicate to the Society from time to time some more shells. It would be very agreeable for me, if you would mention me, in what respect I can otherwise be useful to the body, and I give you the promise, that I shall do my possible to fulfil the desires of that learned Society. Now, my dear Sir, I solicit you to send to me once some shells of your interesting country. Besides the bed shells from the genus Helix, Bulimus, Achetina and Cyclostoma, I wish also to receive of the *Bivalves* and Univalves of fresh waters, and particularly agreeable for me would be specimens of the Genus *Melania*. I purpose merely, if I should be supported by my friends and correspondents in other countries, in procuring specimens of the said genus, to prepare a Monography of it. To your former sending I have received some very interesting and a large unknown species of Melania, which I have described already in a conchological work of our country. I wish now to multiply the specimens of the said genus, and to make them known to the naturalists. I doubt not, that many new shall be found in the waters of Bengal, and every new contribution shall be of value for me. You have sended to me also very fine but broken specimen of a new genus, similar to Paludina, also a specimen similar to Cyclostoma, which are very fine and interesting. Could you send me of these some more I should be very glad. Specimens of this shall also be welcome. One of the Helices I have received I call Podiceps, and on the other Hel. Bensoni, as the descriptions and name of Mr. Benson are not known in Germany.

If, dear Sir, I can be useful to you or the Society in sending minerals or other natural products, I shall fulfill your desires with pleasure, and I solicit only to give me up a secure way that I can send you such objects.

In the hope that my sending shall be agreable to the Society, and that you shall fulfill my desires.

I have the honor to be,

Your obedient servant,

G. Vondem Busch, M. D.

Member of the Board of Health, and of various Scientific Societies.

Bremen, 20th Feb. 1843.

Read the following letter, accompanying the valuable paper to which it refers, which was ordered for publication in the Journal :—

No. 60 of 1844.

From P. Melvill, *Esq. Under-Secretary to the Government of India, to* H. Torrens, *Esq. Secretary to the Asiatic Society, Fort William, the 27th January* 1844.

Foreign Department.

Sir,—I am directed by his Honor the President in Council to forward to you, for such notice as the Society may consider it to merit, the accompanying Vocabulary of the Hinduvee dialect of Bundelcund, by Major R. Leech, C. B.

2nd. You will have the goodness to return the original document when no longer required.

I have the honor to be, Sir,
Your most obedient servant,

Fort William, the 27th January, 1844. P. Melvill,
Under Secretary to Government of India.

A continuation of Lieut. Baird Smith's Researches on Indian Earthquakes, was presented from that gentleman, and will speedily be published.

Read the following extract of a letter to the Secretary from Capt. Cunningham :—

Camp via Ambala, 20th January 1844.

"Can you scholars not come to any conclusion about the connection of the present and former religions of the East, as of the Brahmins, the Magi, and the Lamas?—Hom seems common to all under one modification or another.—The Tibetan "*Doongten*" or "*Doongtung*" is a place of the dead like the Guebre "*Dokmeh*"; and "*Lat*," a pillar of flame, and also an obelisk in the vernacular of India, is an object of worship in either sense in this country.—"*Lat*" was equally adored in Arabia, while words resembling it imply divinity or power, or superiority in Tibet and in other places."

Read the following letter from Dr. McCallum, accompanying the two Works to which it refers :—

To the Secretary to the Asiatic Society of Literature and Science, Calcutta.

Sir,—By desire of Nawab Oomdut-ool-Moolk Bahadoor, I have this day dispatched to your address, two Hindostanee Books translated from the English—one called Ruffee-ool-Bussur, and the other Ruffee-ool-Issabee, and beg you will kindly present them to the Society. The Ruffee-ool-Busser is a work not merely a translation, but some additions have been made to it from the Nawab's own observations.

I beg to remain, Sir,
Your most obedient servant,
D. McCallum,

Hyderabad, 2d Jan. 1844. *Sub-Asst. Surgeon, N. S.*

Read the following letter and note of charges from Mr. Blyth, Curator in the Zoological Department :—

My dear Sir,—I did not think to remind you this morning to send me the letters from F. Wilson and Capt. Cautley, as I wish to forward them to Huffnagle as soon as I can.

Herewith I send the memoranda I promised you of the expenses of the Zoological department of the Museum for the year 1843, exclusive of salaries. The expenses of last month have been unusually heavy, exceeding Co's. Rs. 200; the cost of spirits required being one of the heaviest items. It is only from October last that I have commenced regularly collecting fishes, a branch of zoology that involves the purchase of bottles and of spirit. A considerable number of sundry specimens have been forwarded by me to the Honorable Company's Museum as well as to various other institutions, the collecting and preparation of which enhances the immediate outlay of the Society, although, in the long run, I trust that we shall not be losers by this liberality. From the Honorable Company's Museum, however, to which the greatest number have been sent, and where a host of others are expected from me, I do not expect to receive much by way of exchange. You will also bear in mind that the more successful my exertions are in collecting desirable specimens, the cost of these will always be proportionate or, in the aggregate, about commensurate with that success; and I have certainly obtained many capital things lately. I may also further remind you, that the assistance liberally rendered by Government of 50 Rupees monthly for taxidermist's expenses, was allowed

previously to my taking charge of the Museum, since which time the expenses of our zoological department have of necessity, been so much increased. I wish you to urge these matters to the President at our next meeting,—kindly send Wilson's and Cautley's notes, and am

Yours truly,

February 6, 1844. E. BLYTH.

Memorandum of expenses incurred in the purchase of specimens, and of sundries required for the preparation of them, including the cost of shikarees and of boys to assist the taxidermists, also of correspondents, &c. connected with the Zoological Department of the Museum for the year 1843.

January, ...	Co.'s Rs.	122	15 0
February, ...		81	10 9
March, ...		127	12 0
April, ...		151	4 3
May, ...		122	8 0
June, ...		162	1 0
July, ...		152	5 3
August, ...		103	14 0
September, ...		99	12 9
October, ...		79	10 3
November, ...		130	7 9
December, ...		160	11 0
	12)	1,495	0 0
Average, ...		124	9 4

Add to this the cost of the new cases for the Mammalia, also two new cases in the Bird Room, (holding Parrots, &c.,) and the new Insect cases.

Read the following extract from a private note to the Secretary :—

"I beg to call your attention to the existence of a volume in the Library of the College of Fort William, which I think might more properly be transferred to that of the Asiatic Society. The volume I allude to, is the manuscript original of the translation of the Dharma Shastru of Munoo, by Sir W. Jones; and a gentleman who was with me at the time that my eye fell upon this volume assured me, that he could safely pronounce it to have been written by Sir William himself; if such is the case, it certainly would be deposited with more propriety in the Library of a Society established by that distinguished individual himself, than in that of an establishment in no way connected with him. I have reason to believe, that there are other manuscripts connected with Oriental literature which ought to have been transferred to the Library of the Asiatic Society, which are still buried in the Library of the College of Fort William."

The Secretary was requested to make this the subject of a special representation to Government.

REPORT OF THE CURATOR MUSEUM OF ECONOMIC GEOLOGY AND GEOLOGICAL AND MINERALOGICAL DEPARTMENTS FOR JANUARY, 1844.

Geological and Mineralogical.—Mr. Heatly has obliged us with some minerals from Jubbulpore, amongst which are some quartz geodes finely coated with green earth, a specimen of crystallised mica, and two of zeolites, which will be additions to our cabinet as varieties.

Mr. J. Dodd of the Mint, offers for sale a collection of 200 specimens of the fossils of the older Fossiliferous Rocks, which he procured recently from Berlin for his own researches in the neighhourhood of Agra, hut does not now require. I have examined these, hoth with reference to the specimens themselves and to the prices usually charged by dealers at home, and should strongly recommend their purchase, as they are really much wanted for reference. We have nothing of the kind in the Museum, and the price asked by Mr. Dodd, 95 Rs., is not more than the cost and charges of such a series from respectahle dealers.

To the Secretary to the Asiatic Society.

Dear Sir,—Last year when in tbe Upper Provinces, I ordered from Berlin a collection of Fossils found in the lower Fossiliferous Rocks, for the purpose of comparison with any I might obtain from the neighhourhood of Agra. The collection has just arrived, and as I have now no opportunity for applying it to the ohject I intended, I heg leave to offer it to the Asiatic Society for the sum it has cost me. Tbe collection comprises 200 specimens, and tbe charge is 95 Rupees. I sball be very happy to send the specimens to the Society's Rooms, if you think it will be disposed to take them off my hands.

Yours ohediently,

December 23, 1843. Jas. Dodd.

I may notice here, for it helongs specially to the department, the reception of a continuation of Lieut. Baird Smith's paper on Earthquakes for the Journal, and it is to be hoped, tbat from the wide circulation which these valuable papers will ohtain, we shall he ahle to draw attention to tbese singular and often awful phenomena, with which, no douht, so many of the changes of our glohe are connected.

Museum of Economic Geology.—Capt. Hannay, Assam L. I., has contributed nine specimens of clays from the hanks of the Dikho River in that country.

In searching through our Cahinets for other matters, I have met with a specimen of the beautiful green Jade, (axe-stone,) of New Zealand, to which I referred at the meeting of October. It is fortunately also marked with the name and locality, "Bigge, Suddiya," so we know that it is from Assam, and though only a pehble from the river, it is to be hoped we may find tbe vein or mass of it. Our zealous member, Captain Hannay, promises me to use his hest endeavours to procure us specimens, as also of some very fine precious serpentine, which he says is to be ohtained in very large hlocks tbere. If these stones could reach Calcutta cheaply, they would he much prized, and probably valuahle as exports to China, as the New Zealand Jade already is.

Mr. Hodgson, late Resident at Kathmandoo, has ohliged ns with a hottle of the water of the Gossainthan spring at 24.500 feet of elevation in the Himalayas. Upon a hasty examination I find it is of a light inky colour, and higbly fetid smell, but no peculiarly disagreeahle taste heyond that of the sulphuretted bydrogen, and that it contains sulphuretted hydrogen in considerahle quantity, and traces of carhonic acid. A black flakey deposit is forming in it, prohahly bitumen and sulphur?

It gives no trace of iron or lime, muriates, or sulphates, and is thus probably a mere solution of bituminous and sulphureous matters. It is evidently decomposing, and this with its entire inaccessihility to us, render it not worth while to analyze it minutely, but I shall not fail to examine the deposit

Mr. Greenlaw, Secretary to the Superintendent of Marine, has ohliged us with a few specimens of the copper ore, and another of the argentiferous lead ore of Adelaide, Australia.

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